OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

I. GENERAL OBJECTIONS

1. SDG&E objects generally to each request to the extent that it seeks information protected by the attorney-client privilege, the attorney work product doctrine, or any other applicable privilege or evidentiary doctrine. No information protected by such privileges will be knowingly disclosed.

2. SDG&E objects generally to each request that is overly broad and unduly burdensome. As part of this objection, SDG&E objects to discovery requests that seek "all documents" or "each and every document" and similarly worded requests on the grounds that such requests are unreasonably cumulative and duplicative, fail to identify with specificity the information or material sought, and create an unreasonable burden compared to the likelihood of such requests leading to the discovery of admissible evidence. Notwithstanding this objection, SDG&E will produce all relevant, non-privileged information not otherwise objected to that it is able to locate after reasonable inquiry.

3. SDG&E objects generally to each request to the extent that the request is vague, unintelligible, or fails to identify with sufficient particularity the information or documents requested and, thus, is not susceptible to response at this time.

4. SDG&E objects generally to each request that: (1) asks for a legal conclusion to be drawn or legal research to be conducted on the grounds that such requests are not designed to elicit facts and, thus, violate the principles underlying discovery; (2) requires SDG&E to do legal research or perform additional analyses to respond to the request; or (3) seeks access to counsel's legal research, analyses or theories.

5. SDG&E objects generally to each request to the extent it seeks information or documents that are not reasonably calculated to lead to the discovery of admissible evidence.

6. SDG&E objects generally to each request to the extent that it is unreasonably duplicative or cumulative of other requests.

7. SDG&E objects generally to each request to the extent that it would require SDG&E to search its files for matters of public record such as filings, testimony, transcripts, decisions, orders, reports or other information, whether available in the public domain or through FERC or CPUC sources.

8. SDG&E objects generally to each request to the extent that it seeks information or documents that are not in the possession, custody or control of SDG&E.

9. SDG&E objects generally to each request to the extent that the request would impose an undue burden on SDG&E by requiring it to perform studies, analyses or calculations or to create documents that do not currently exist.

10. SDG&E objects generally to each request that calls for information that contains trade

secrets, is privileged or otherwise entitled to confidential protection by reference to statutory protection. SDG&E objects to providing such information absent an appropriate protective order.

II. EXPRESS RESERVATIONS

1. No response, objection, limitation or lack thereof, set forth in these responses and objections shall be deemed an admission or representation by SDG&E as to the existence or nonexistence of the requested information or that any such information is relevant or admissible.

2. SDG&E reserves the right to modify or supplement its responses and objections to each request, and the provision of any information pursuant to any request is not a waiver of that right.

3. SDG&E reserves the right to rely, at any time, upon subsequently discovered information.

4. These responses are made solely for the purpose of this proceeding and for no other purpose.

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

III. RESPONSES

QUESTION 1

Regarding the cost of mitigations:

a. SDG&E discusses the following mitigation activities in its 2023-2025 WMP:
   i. Covered Conductor
   ii. Undergrounding
   iii. Wireless fault indicators
   iv. SCADA capacitators
   v. Microgrids
   vi. Hotline clamp removal/replacement
   vii. Distribution traditional hardening
   viii. Transmission traditional hardening
   ix. Distribution pole replacements and reinforcements
   x. Transmission pole/tower replacements and reinforcements
   xi. Distribution Underbuild
   xii. Lightning arrestor removal/replacement
   xiii. Avian/animal protection
   xiv. Expulsion fuse replacement
   xv. Strategic Pole replacement
   xvi. Advanced Protection Program (APP)
   xvii. Early Fault Detection (EFD)
   xviii. Distribution Communications Reliability Improvement (DCRI)
   xix. Sensitive Ground Fault (SGF) Protection
   xx. Sensitive Relay Profile (SRP) settings
   xxi. Falling Conductor Protection (FCP)

For each of the above activities, provide:

1) The projected average capital cost per circuit mile[1] of projects[2] expected to be completed[3] in 2025.
2) The average capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024.

[1] Cost per circuit mile in this Data Request refers to the cost per circuit mile of risk mitigated by the given activity, i.e. the number of circuit miles covered by a mitigation being implemented.
[2] The average capital cost provided should be the average of all projects expected to be completed in 2025 and not a separate average capital cost per circuit mile for each project.
[3] A project is considered complete when it is operationalized.

3) The average operation and maintenance cost per circuit mile per year[4] of projects completed from Jan 1, 2021, to Jun 30, 2024.
4) A discussion of factors that have resulted in projects completed from Jan 1, 2021, to Jun 30, 2024, with a capital cost per circuit mile 20 percent more than the average cost per circuit mile from Jan 1, 2021, to Jun 30, 2024, for that given activity. List the factors and discuss how each impacts the cost.
5) A discussion of factors that have resulted in projects completed from Jan 1, 2021, to Jun 30, 2024, with a capital cost per circuit mile 20 percent less than the average cost per circuit mile from Jan 1, 2021, to Jun 30, 2024, for that given activity. List the factors and discuss how each impacts the cost.
6) Complete the following table for the 10 projects with the highest capital cost per circuit mile and 10 projects with the lowest capital cost per circuit mile completed in 2023. If less than 20 projects were completed in 2023, complete the table for all projects completed in 2023

Mitigation Activity					
Project ID	Location	Project length (circuit miles)	Project Capital Cost	Project Duration[5] (days)	Capital Cost per circuit mile

RESPONSE 1

*Cost information depicted for **Construction activity only.** Pre-construction and planning for capital projects is typically performed years in advance of construction activity, and consistent with SDG&E's general accounting practices for capital projects, planning, scoping, engineering, and other such work are typically charged to a single general work order. Thus, it is often not possible to isolate them in the same fashion as construction activity costs.

Additionally, certain capital projects, as noted below, are not measured by circuit mile increments for cost or units of installation. It would be inappropriate to apply a cost or unit per mile approach for these initiatives as units and costs per mile may vary greatly due to system configuration and needs. For the initiatives noted below, SDG&E believes it is more appropriate to average costs and timeframes per unit, rather than per circuit mile. SDG&E can provide this information upon request.

[4] The average operation and maintenance (O&M) cost provided should be the average O&M cost per circuit mile per year of all projects expected to be completed for the years between 2021 and 2023, and not a separate O&M cost for each project.
[5] Project duration refers to the number of days from the beginning of the design phase to electrification.

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

Covered Conductor

1) The projected capital cost per circuit mile expected to be completed in 2025 is $800,203.
2) The capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $840,707.
3) The operation and maintenance cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $38,011.
4) The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the cost per mile to be 20% more than the average,
    a. More stringent permitting and/or environmental constraints, such as monitors or specific allowable work hours,
    b. Hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
    c. Non-truck accessible locations that require labor, equipment, and materials to be transported via helicopter,
    d. Deeper embedment depths than typically required and/or concrete backfill usually caused by the slope of the terrain,
    e. Change orders during construction due to unforeseen circumstances, such as customer requests,
    f. More pole replacements for locations where an existing steel pole is not adequate to support the new covered conductor due to clearance requirements and/or mechanical loading,
5) The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the cost per mile to be 20% less than the average,
    a. Less stringent permitting and/or environmental constraints, such as no environmental monitoring and/or limitations on allowable work hours,
    b. Fewer locations that require hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
    c. More pole locations that are truck accessible and do not require helicopter support,
    d. More locations with standard embedment depths and/or do not require concrete backfill, such as flat terrain locations,
    e. Fewer and/or less costly change orders during construction due to unforeseen circumstances, such as customer request,
    f. Less pole replacements for locations where an existing steel pole is not adequate to support the new covered conductor due to clearance requirements and/or mechanical loading,
    g. In some cases, only the pole was replaced as the existing wire was adequate,
6) See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Undergrounding

1) The projected capital cost per circuit mile expected to be completed in 2025 is $1,252,703.
2) The capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $1,599,647.

3) The operation and maintenance cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $3,805.
4) The projects with the highest cost per unit fall into four categories –
    a. Projects with very low mileages, which are driven by selection of the project around specific engineering problems like bridge and highway crossings, resulting in high unit cost as the total cost of addressing the engineering problem is not distributed on a larger project.
    b. Projects with significant underground discoveries, including rock and utility conflicts, increase the cost of construction.
    c. Projects with post-construction re-negotiations with landowners where additional work is required to be added to the project to meet landowner conditions for land rights.
    d. Projects which were contracted during a time of high market prices with higher contractor performance risks, resulting in higher costs.
5) The lowest cost projects all share the characteristics of reduced volume of pavement repair (higher ratio of dirt roads / unimproved areas / soft shoulder trenching to paved roads) and minimal underground discoveries and utility conflicts. Additionally, several of these projects were awarded on a T&E (Cost Plus) basis, resulting in the lowest available cost of construction. Several others were bid as a group at a time of favorable market prices to secure lower contractor costs.
6) See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

<u>Wireless Fault Indicators Project cost is measured by number of units installed – not cost per mile.</u>

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

<u>SCADA Capacitors Project cost is measured by number of units installed – not cost per mile.</u>

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

<u>Microgrids are measured by number of units installed – not cost per mile.</u>

1) N/A
2) N/A
3) N/A

4) N/A
5) N/A
6) N/A

Hotline Clamp Removal/Replacement Project cost is measured by number of units installed – not cost per mile.

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Distribution Traditional Hardening

1) The projected capital cost per circuit mile expected to be completed in 2025 is $720,183.
2) The capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $717,842.
3) The operation and maintenance cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $907.
4) The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the cost per mile to be 20% more than the average,
    a. More stringent permitting and/or environmental constraints, such as monitors or specific allowable work hours,
    b. Hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
    c. Non-truck accessible locations that require labor, equipment, and materials to be transported via helicopter,
    d. Deeper embedment depths than typically required and/or concrete backfill usually caused by the slope of the terrain,
    e. Change orders during construction due to unforeseen circumstances, such as customer request,
    f. More pole replacements for locations where an existing steel pole is not adequate to support the new covered conductor due to clearance requirements and/or mechanical loading,
5) The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the cost per mile to be 20% less than the average,
    a. Less stringent permitting and/or environmental constraints, such as no environmental monitoring and/or limitations on allowable work hours,
    b. Fewer locations that require hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
    c. More pole locations that are truck accessible and do not require helicopter support,

   d. More locations with standard embedment depths and/or do not require concrete backfill, such as flat terrain locations,
   e. Fewer and/or less costly change orders during construction due to unforeseen circumstances, such as customer request,
   f. Less pole replacements for locations where an existing steel pole is not adequate to support the new covered conductor due to clearance requirements and/or mechanical loading,
6) See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Transmission Traditional Hardening

1) The projected capital cost per circuit mile expected to be completed in 2025 is $6,672,690. This normalized cost/mile is extremely inflated due to two projects with a very low expected mileage (less than one mile), while scoping and other planning costs have remained stable.
2) The capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $3,132,510
3) Program has not incurred significant O&M charges at this point.
4) The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the cost per mile to be 20% more than the average,
   a. For one project, the cost per mile is high due to some of the work having higher cost undergrounding activities
   b. The proportion of high costs engineered steel poles on smaller projects result in high cost per mile
   c. In general, some of the following can contribute during construction:
      i. Hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
      ii. Non-truck accessible locations that require labor, equipment, and materials to be transported via helicopter,
      iii. Deeper embedment depths than typically required and/or concrete backfill usually caused by the slope of the terrain,
      iv. Change orders during construction due to unforeseen circumstances, such as customer request
5) The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the cost per mile to be 20% less than the average,
   a. Cost per mile benefits from long mileage projects due to economies of scale and fixed mobilization and demobilization fees.
   b. In general some of the following can contribute during construction:
      i. Less stringent permitting and/or environmental constraints, such as no environmental monitoring or limitations on allowable work hours,
      ii. Fewer locations that require hard digging caused by rock or non-truck accessible locations for pole holes and anchor,

   iii. More pole locations that are truck accessible and do not require helicopter support,
   iv. More locations with standard embedment depths and/or do not require concrete backfill, such as flat terrain locations,
   v. Fewer and/or less costly change orders during construction due to unforeseen circumstances, such as customer request

6) See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Distribution Pole Replacements and Reinforcements Project cost is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Transmission Pole/Tower Replacements and Reinforcements Project cost is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Distribution Underbuild Project cost is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Lightning Arrestor Removal/Replacement Project is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A

4) N/A
5) N/A
6) N/A

Avian/Animal Protection Project is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Expulsion Fuse Replacement Project is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Strategic Pole Replacement Project is measured by number of units installed – not cost per mile

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Advanced Protection Program (APP)

1) The projected capital cost per circuit mile expected to be completed in 2025 is $34,700.
2) The capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $140,612. Historical costs are significantly higher than future projected costs due to the need for multiple repeater installations to communicate data back to the substation. There is no need to install repeaters in the future as communications will be achieved utilizing LTE coverage.
3) Program has not incurred significant O&M charges at this point.
4) Factors > 20% Avg Cost 1/1/21 - 6/30/24:
    a. More repeaters were required for PA C239 which contributed to increased cost for lineside construction
5) Factors < 20% Avg Cost 1/1/21 - 6/30/24:

   a. CRE C236 and PA RB1 both comprised of shorter design-to-construction durations and less total pole locations to complete lineside construction efforts
6) See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Early Fault Detection (EFD)

1) The projected capital cost per circuit mile expected to be completed in 2025 is $72,054. These costs are higher compared to previous years due to primarily shifting from using internal labor during program pilot to contract labor in production, increased overhead rates, and cost of transformers used to power EFD nodes not being funded by the original pilot deployments.
2) The capital cost per circuit mile of projects completed from Jan 1, 2021, to Jun 30, 2024 is $27,409
3) Program has not incurred significant O&M charges at this point.
4) Factors > 20% Avg Cost 1/1/21 - 6/30/24:
   a. Scope of work larger than general scope (i.e. solar powered assemblies require additional work procedures compared to typical PT/Secondary power installations)
   b. Pole replacement required due to pole load calculations
   c. Reconductoring required due to pole replacements
5) Factors < 20% Avg Cost 1/1/21 - 6/30/24
   a. Scope of work was less than average and straight forward. (i.e. PT/Secondary more straight forward than solar powered assemblies)
6) See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Distribution Communications Reliability Improvement (DCRI) Project is measured by number of units installed – not cost per mile.

1) N/A
2) N/A
3) N/A
4) N/A
5) N/A
6) N/A

Sensitive Ground Fault (SGF) Protection

Sensitive Ground Fault (SGF) Protection is a technology included as a capability of the protection devices deployed as part of the Advanced Protection Program and is included in the installation of these devices. Please refer to Advanced Protection Program detailed response above for data requested.

Sensitive Relay Profile (SRP) Settings

Sensitive Relay Profile (SRP) Settings is a technology included as a capability of the protection devices deployed as part of the Advanced Protection Program and is included in the installation of these devices. Please refer to Advanced Protection Program detailed response above for data requested.

Falling Conductor Protection (FCP)

Falling Conductor Protection (FCP) is a technology included as a capability of the protection devices deployed as part of the Advanced Protection Program and is included in the installation of these devices. Please refer to Advanced Protection Program detailed response above for data requested.

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

QUESTION 2

a. For each mitigation activity listed in Q01. a. i-xxii, provide:

   i. The projected project duration (days/circuit mile)[6] for projects expected to be completed in 2025.
   ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024.
   iii. A discussion of factors that have resulted in projects completed from Jan 1, 2021, to Jun 30, 2024, with a project duration (days/circuit mile) 20 percent more than the average project duration from Jan 1, 2021, to Jun 30, 2024, for that given activity. List the factors and discuss how each impacted the project duration.
   iv. A discussion of factors that have resulted in projects completed from Jan 1, 2021, to Jun 30, 2024, with a project duration (days/circuit mile) 20 percent less than the average project duration from Jan 1, 2021, to Jun 30, 2024, for that given activity. List the factors and discuss how each impacted the project duration.
   v. Complete the following table for the 10 projects with the longest duration per circuit mile and 10 projects with the lowest duration per circuit mile completed in 2023. If less than 20 projects were completed in 2023, complete the table for all projects completed in 2023.

Mitigation Activity					
Project ID	Location	Project length (circuit miles)	Project Capital Cost	Project Duration[7] (days)	Capital Cost per circuit mile

RESPONSE 2

Covered Conductor

i. The projected duration (days/circuit mile) for projects expected to be completed in 2025 is 707 days
ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024 is 527 days
iii. There are 26 of 108 projects that fall into this category. The projects durations were 20% longer than the average due to various factors including delays in pre-construction activities such as designs changes from bare wire to covered conductor, land rights

[6] Duration per circuit mile in this question refers to the length of time required to mitigate one circuit mile of risk with the given activity.
[7] Project duration refers to the number of days from the beginning of the design phase to electrification.

acquisitions delays, permitting with various agencies including CalTrans, CNF, County of San Diego, and scope changes due customer requests or change orders due to construction challenges.

iv. There are 60 of 108 projects that fall into this category. The project durations were 20% less than the average due to various factors including fewer permitting requirements, simple pole top configurations with minimal equipment attachments and/or third-party attachments, less constraints from land and environmental, and less land rights acquisitions required.

v. See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Undergrounding

i. The projected duration (days/circuit mile) for projects expected to be completed in 2025 is 399 days.

ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024 is 282 days.

iii. There are 38 projects that fall into this category, of a total of 90 projects. The projects generally formed a normal distribution when arranged against the average duration.
    a. Of these projects, 2 had specific unique design constraints related to substation getaways, which impacted project durations.
    b. 9 others had special agency permits, particularly from Caltrans, the USFS, or a tribal government and the BIA, which resulted in an exceptionally long permitting duration.
    c. The remaining 27 projects in the category required new easement grants from landowners who opposed the project initially and had to be avoided by design efforts or convinced to join the project. Several of these landowners took more than a year of engagement to convince them to grant land rights to SDG&E for the project.
    d. In addition to the above design factors, these projects were consistently smaller in total mileage than those projects which fell below the average, resulting in progressively higher per-mile durations as the design engineering process is very consistent regardless of the total size of the project.

iv. There are 27 projects that fall into this category, of a total of 90 projects. As noted above, the projects generally formed a normal distribution when arranged against the average duration. Of these, none had special agency permitting or unique or complex design constraints. Additionally, all of these projects were consistently larger in total size, allowing for a greater dilution of fixed duration items.
    a. 7 of these projects were “Direct Undergrounding” projects, which consisted of primary mainline UG installations with limited numbers of services only to critical facilities in targeted communities, resulting in high rates of adoption from landowners, and most of the work being in franchise roadways where land rights were relatively easy to acquire. Additionally, these projects did not have an OH

removal component, as the remaining services continued to be fed from the OH system.

b. 8 other projects were among the earliest of the "Strategic Undergrounding" projects and were selected for early work due to the likelihood of short schedules.
c. 4 of the projects were specifically identified for rapid performance due to high volume with a single primary landowner and were handled by a tiger team approach due to the request of the primary landowner that is affected by the projects.
d. 5 of the projects were among the largest projects performed, resulting in commensurately low per-unit durations.
e. The remaining projects were broadly free from objections from landowners or permitting constraints that impacted the work.

v. See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

<u>Wireless Fault Indicators Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

<u>SCADA Capacitors Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

<u>Microgrids Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

<u>Hotline Clamp Removal/Replacement Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

Distribution Traditional Hardening

i. The projected duration (days/circuit mile) for projects expected to be completed in 2025 is 1,254 days per circuit mile. This average duration is skewed by one outlier project that has a project duration of 1,887 days to energize 0.1 miles (10/20/20 to 12/20/2025) due to a dependency on a County of San Diego underground conversion project. This project alone has a normalized duration of 18,870 days/circuit mile. Excluding this one outlier project the average duration is 802 days.
ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024 is 747 days per circuit mile days.
iii. There are 19 of 102 projects that fall into this category. The projects durations were 20% longer than the average due to various factors including delays in pre-construction activities such as designs changes from bare wire to covered conductor, land rights acquisitions delays, permitting with various agencies including CalTrans, CNF, County of San Diego, and scope changes due customer requests or change orders due to construction challenges.
iv. There are 59 of 102 projects that fall into this category. The project durations were 20% less than the average due to various factors including fewer permitting requirements, simple pole top configurations with minimal equipment attachments and/or third-party attachments, less constraints from land and environmental, and less land rights acquisitions required.
v. See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Transmission Traditional Hardening

i. The projected duration (days/circuit mile) for projects expected to be completed in 2025 is 248.
ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024 is 475 days per circuit mile.

iii. The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the schedule duration to be 20% more than the average,
    a. Looking at the data per mile has the effect of small mileage projects being a significant outlier as the duration of time to obtain permits and land are not proportional to the size of the project.
    b. In general some of the following can contribute during construction:
        i. More stringent permitting and/or environmental constraints, such as monitors or specific allowable work hours,
        ii. Hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
        iii. Non-truck accessible locations that require labor, equipment, and materials to be transported via helicopter,
        iv. Deeper embedment depths than typically required and/or concrete backfill usually caused by the slope of the terrain,

v. Change orders during construction due to unforeseen circumstances, such as customer request

iv. The following factors for projects completed between 1/1/2021 to 6/30/2024 caused the schedule duration to be 20% less than the average,
   a. In general some of the following can contribute during construction:
      i. Less stringent permitting and/or environmental constraints, such as no environmental monitoring or limitations on allowable work hours,
      ii. Fewer locations that require hard digging caused by rock or non-truck accessible locations for pole holes and anchor,
      iii. More pole locations that are truck accessible and do not require helicopter support,
      iv. More locations with standard embedment depths and/or do not require concrete backfill, such as flat terrain locations,
      v. Fewer and/or less costly change orders during construction due to unforeseen circumstances, such as customer request

v. See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

<u>Distribution Pole Replacements and Reinforcements Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

<u>Transmission Pole/Tower Replacements and Reinforcements Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

<u>Distribution Underbuild Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

<u>Lightning Arrestor Removal/Replacement Project is not measured per mile.</u>

i. N/A
ii. N/A
iii. N/A

iv. N/A
v. N/A

Avian/Animal Protection Project is not measured per mile.

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

Expulsion Fuse Replacement Project is not measured per mile.

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

Strategic Pole Replacement Project is not measured per mile.

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

Advanced Protection Program (APP)

i. The projected duration (days/circuit mile) for projects expected to be completed in 2025 is 33.40.
ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024 is 11.82.
iii. Factors associated with one circuit consisted of new/additional easement requirements
iv. Factors consisted of projects requiring less pole locations and no significant easement impacts.
v. See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Early Fault Detection (EFD)

i. The projected duration (days/circuit mile) for projects expected to be completed in 2025 is 180.
ii. The average project duration (days/circuit mile) of projects completed from Jan 1, 2021, to Jun 30, 2024 is 194 days.
iii. Factors > 20% Avg Duration 1/1/21 - 6/30/24:
    - Easements, Permits, Environmental delays
    - Pole replacement, material availability for pole replacement
    - Outage requirements tied to pole replacements
    - Scoping taking longer due to additional fielding required to wireless data network service

- Internal resources limitation due to workload prioritization

iv. Factors < 20% Avg Duration 1/1/21 - 6/30/24
- Easement, Permits, Environmental are internally addressed, or not required
- Scope of work minimal
- All materials readily available
- Outage not required for construction

v. See attached excel in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q1 and Q2.

Distribution Communications Reliability Improvement (DCRI) Project is not measured per mile.

i. N/A
ii. N/A
iii. N/A
iv. N/A
v. N/A

Sensitive Ground Fault (SGF) Protection

Sensitive Ground Fault (SGF) Protection is a technology included as a capability of the protection devices deployed as part of the Advanced Protection Program and is included in the installation of these devices. Please refer to Advanced Protection Program detailed response above for data requested.

Sensitive Relay Profile (SRP) Settings

Sensitive Relay Profile (SRP) Settings is a technology included as a capability of the protection devices deployed as part of the Advanced Protection Program and is included in the installation of these devices. Please refer to Advanced Protection Program detailed response above for data requested.

Falling Conductor Protection (FCP)

Falling Conductor Protection (FCP) is a technology included as a capability of the protection devices deployed as part of the Advanced Protection Program and is included in the installation of these devices. Please refer to Advanced Protection Program detailed response above for data requested.

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

QUESTION 3

a. For each mitigation activity listed in Q01. a. i-xxii:

   i. List the constraints associated with each activity (e.g., cannot be deployed on 3 wire systems, in areas with frequent freeze/thaw cycles, requires communication network to function).
   ii. Provide a completed compatibility table. Each cell must identify one of the following:
      (1) Mitigations are compatible[8] and the combination will further reduce wildfire risk.
      (2) Mitigations are compatible, but combination will not further reduce wildfire risk.
      (3) Mitigations are compatible, but it is unknown if combination will further reduce wildfire risk.
      (4) Mitigations are not compatible/combination is impractical.

The utility must submit two separate tables, one for transmission specific initiatives and one for distribution specific initiatives, if the transmission and distribution tables are not identical.
Example Mitigation Initiative Compatibility Table:

Mitigation Activity	Covered Conductor Installation	Undergrounding	Wireless Fault Indicators	(Mitigation Activities continued…)
Covered Conductor Installation		Mitigations are not compatible/ combination is impractical	Mitigations are compatible and combination will reduce additional wildfire risk	
Undergrounding	Mitigations are not compatible/ combination is impractical		Mitigations are not compatible/ combination is impractical	
Wireless Fault Indicators	Mitigations are compatible and combination will reduce additional wildfire risk	Mitigations are not compatible/ combination is impractical		
(Mitigation Activities continued…)				

[8] Compatible refers to mitigations that can physically exist in the same space.

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

RESPONSE 3

i. Constraints associated with each activity:
   - Covered Conductor
     - Precludes any underground solution along the same section.
   - Undergrounding
     - Undergrounding precludes any overhead solution along the same section.
     - Undergrounding can be limited by technical factors which prevent or discourage excavation or appropriate facility location, including restrictions from jurisdictional agencies, refusal by landowners, large water bodies, and/or known resource findings.
   - Wireless fault indicators
     - No Constraints
   - SCADA capacitators
     - No Constraints
   - Microgrids
     - No constraints
   - Hotline clamp removal/replacement
     - No Constraints
   - Distribution traditional hardening
     - Precludes any underground solution along the same section.
   - Transmission traditional hardening
     - No constraints assuming existing OH transmission lines at the location
   - Distribution pole replacements and reinforcements
     - No constraints assuming existing distribution pole at the location and no significant permitting, land rights or other
   - Transmission pole/tower replacements and reinforcements
     - No constraints assuming existing transmission structure at the location
   - Distribution Underbuild
     - No constraints assuming existing OH distribution lines at the location
     - Precludes any underground solution along the same section.
   - Lightning arrestor removal/replacement
     - No Constraints
   - Avian/animal protection
     - No Constraints
   - Expulsion fuse replacement
     - No Constraints
   - Strategic Pole replacement
     - Precludes any locations that have poles being removed by underground, covered conductor, or traditional hardening.
   - Advanced Protection Program (APP)
     - Requires network connectivity via ethernet or LTE to transmit data

- Early Fault Detection (EFD)
  - Requires network connectivity via ethernet or LTE to transmit data.
- Distribution Communications Reliability Improvement (DCRI)
  - Requires power source to power up LTE equipment and back-up battery cabinet and truck accessibility for maintenance.
- Sensitive Ground Fault (SGF) Protection
  - See Advanced Protection Program above
- Sensitive Relay Profile (SRP) settings
  - See Advanced Protection Program above
- Falling Conductor Protection (FCP)
  - See Advanced Protection Program above
  - Precludes sections that are underground.

ii. See attached compatibility tables in the file named, SDGE Response OEIS-MitigationSelection-SDGE-001_Q3_Compatibility Table. Cells are blacked out where mitigation combinations are duplicative; however, all combinations of mitigations are presented.

OEIS DATA REQUEST: OEIS-MITIGATIONSELECTION-SDGE-001
SDG&E RESPONSE

Date Received: 11-07-2024
Date Submitted: 12-11-2024

END OF REQUEST