

Application No.: A.19-08-013
Exhibit No.: SCE-15, Vol. 04
Witnesses: A. Benoiel



(U 338-E)

**2021 General Rate Case
Rebuttal Testimony**

Physical Security

Before the
Public Utilities Commission of the State of California

Rosemead, California
June 12, 2020

SCE-15 Vol. 04: Physical Security

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Appendix A SCE-15, Vol. 04

1 I.

2 **INTRODUCTION**

3 The Physical Security Business Planning Element's (BPE) activities address the physical
4 protection of SCE's workforce, customers, facilities, and infrastructure from threats, intrusions, attacks,
5 theft, and property damage. SCE's physical security strategies, activities, and programs support the
6 reliability of the Bulk Electric System (BES), reinforce effective security operations to include
7 monitoring/response activities, improve workplace security, and address and integrate administration
8 and maintenance of security systems.

9 The Physical Security BPE's operations and maintenance (O&M) forecasts includes (1) the
10 Security Operations and Maintenance functions, which covers the Program Management office which
11 tracks and prioritizes projects, (2) the Break-Fix and Preventive maintenance of the major security
12 systems for access control, intrusion detection, perimeter protection, and video surveillance systems, and
13 (3) the Workforce Protection and Insider Threat program, which covers security officer services, the
14 Edison Security Operations Center, the badging office, background investigations, and governance and
15 compliance oversight of security programs. Physical Security BPE capital projects support SCE's
16 physical security strategy, facilitate compliance with NERC CIP Standards, and enhance the physical
17 security of our workers and assets for electric, non-electric and generation facilities.

18 SCE's Test Year 2021 forecast of O&M expenses and 2019-2023 capital expenditures forecast
19 for the Physical Security BPE support our efforts to provide and enhance the physical security of our
20 employees, customers, facilities and infrastructure. This testimony addresses the recommendations
21 raised by the Public Advocates Office (Cal Advocates) regarding SCE's Physical Security BPE forecasts
22 for O&M expenses for the 2021 Test Year and capital expenditures from 2019 through 2021.¹

23 **A. Summary of Rebuttal Position**

24 The forecasts for Physical Security O&M expense and capital expenditures, made by SCE and
25 Cal Advocates are shown in the following tables. Table I-1 provides a summary of the 2021 O&M
26 expense forecast for SCE and Cal Advocates along with the variances from SCE's forecast.

¹ Other than Cal Advocates, no other party submitted testimony concerning the Physical Security BPE forecasts.

Table I-1
Physical Security
2021 O&M Forecast
Summary of SCE, Cal Advocates, and TURN Position
(2018 Constant \$000)

Line No.	GRC Activity	2021 Forecast			Variance from SCE		SCE Rebuttal Position
		SCE	Cal Advocates	TURN	Cal Advocates	TURN	
1	Security Technology	23,375	22,851	NC	(524)	NC	23,375
2	Workforce Protection/Insider Threat	213	213	NC	0	NC	213
3	Total	23,588	23,064	-	(524)	-	23,588

1 Table I-2 provides a summary of Physical Security BPE capital forecast from 2019 to 2021 by
2 SCE and Cal Advocates along with the variance from SCE’s forecast. As an initial matter (and as
3 discussed throughout SCE’s rebuttal testimony volumes), SCE has updated its 2019 capital forecast with
4 2019 recorded expenditures.

Table I-2
Physical Security
Capital Expenditures 2019-2021 Forecast
Summary of SCE, Cal Advocates, and TURN Position
(Nominal \$000)

Line No.	GRC Activity	2019 - 2021 Forecast ^[1]			Variance from SCE		SCE Rebuttal Position
		SCE	Cal Advocates	TURN	Cal Advocates	TURN	
1	Protection of Grid Infrastructure Assets	79,319	46,264	NC	(33,055)	NC	79,319
2	Protection of Major Business Function Capital	32,993	32,993	NC	0	NC	32,993
3	Protection of Generation Assets	7,476	7,475	NC	(1)	NC	7,476
4	NERC Compliance Programs	52,300	52,299	NC	(1)	NC	52,300
6	Total	172,088	139,032	-	(33,057)	-	172,088

[1] 2019 recorded was used

1 II.

2 **SECURITY TECHNOLOGY OPERATIONS AND MAINTENANCE**

3 A. **O&M Expenses**

4 1. **SCE’s Application**

5 SCE’s Test Year 2021 O&M forecast is \$23.588 million for the Physical Security BPE,
6 an increase of \$828,000 over the 2018 recorded costs. The itemized forecast is based on the last year
7 recorded plus incremental changes addressing increased labor costs (as SCE experienced an unusually
8 high volume of vacancies in 2018) and lower levels of non-labor costs in the Test Year.

*Table II-3
Physical Security
2014-2018 O&M Recorded/2021 Forecast
Summary of SCE, Cal Advocates, and TURN Position
(2018 Constant \$000)*

Line #	Legal	SCE Recorded					2021 Forecast			Variance from SCE		SCE Rebuttal Position
		2014	2015	2016	2017	2018	SCE	Cal Advocates	TURN	Cal Advocates	TURN	
1	Labor	5,136	(2,035)	5,150	5,940	4,692	6,189	6,189	NC	-	NC	6,189
2	Non-Labor	20,214	30,832	23,121	19,192	18,021	17,399	16,875	NC	(524)	NC	17,399
3	Total	25,351	28,797	28,271	25,131	22,713	23,588	23,064	-	(524)	-	23,588

9 2. **Cal Advocates**

10 a) **Cal Advocates’ Position**

11 Cal Advocates recommends a Test Year forecast of \$22.852 million, a reduction
12 of \$523,000 from SCE’s forecast. While Cal Advocates takes no issue with the labor cost forecast, Cal
13 Advocates argues that non-labor costs for the Security Technology account should be based on “a two
14 year average of recorded 2018 and forecasted 2019 to forecast TY 2021” since non-labor costs have
15 “widely fluctuated from a low of \$1.859 million in 2014 to a high of \$20.828 million” and its
16 recommended forecast creates a more gradual increase for Test Year 2021.²

17 b) **SCE’s Rebuttal to Cal Advocates’ Position**

18 SCE provided a detailed explanation of its Test Year non-labor forecast which
19 reflects a 3.5% decrease from 2018 recorded non-labor costs despite upward pressures arising from
20 escalating security officer costs tied to statutorily mandated wage increases and increasing maintenance

² Exhibit PAO-7, p. 25.

1 and repair costs over time.³ Cal Advocates has not challenged SCE’s explanation of its itemized forecast
2 and Cal Advocates’ proposed reduction is solely premised on illusory fluctuations in the historic non-
3 labor costs.

4 Cal Advocates’ recommendation relies on a misreading of historic non-labor
5 costs. SCE had two separate accounts where non-labor costs for the Physical Security BPE were
6 recorded: (1) Security Technology and (2) Workforce Protection/Insider Threat. Prior to 2017, the bulk
7 of Physical Security BPE non-labor costs were charged to the Workforce Protection/Insider Threat
8 account. Starting in 2017, an accounting change resulted in certain non-labor costs shifting into the
9 Security Technology account.⁴ As shown in Table 7-12 below from Cal Advocates’ testimony,⁵
10 increases in the Security Technology account, starting in 2017, are mirrored by decreases in the
11 Workforce Protection/Insider Threat account.

Table II-4
Physical Security
2014-2018 Recorded/2021 Forecast
(in Thousands of 2018 Dollars)

Description	2014	2015	2016	2017	2018	SCE 2021	Public Advocates Office 2021
Security Technology	\$3.238	\$4.015	\$4.437	\$26.594	\$22.547	\$23.375	\$22.852
Workforce Protection/ Insider Threat	\$22.112	\$24.782	\$23.834	\$(1.462)	\$0.166	\$0.213	\$0.213
Total	\$25.350	\$28.797	\$28.271	\$25.132	\$22.713	\$23.588	\$23.065

12 However, the total non-labor costs (i.e. totaling both accounts) reflects the
13 Physical Security BPE’s non-labor costs have stayed relatively flat from 2014 to 2018.⁶ While the

³ Exhibit SCE-04, Volume 4, pp. 19-20.

⁴ Exhibit PAO-7, p. 25.

⁵ Id.

⁶ There are some minor discrepancies between the recorded costs Cal Advocates used and the recorded costs for the Physical Security BPE shown in SCE-04, Vol. 4 at page 10 (Table II-5). Cal Advocates’ table used figures for both accounts from the workpapers (SCE-04, Vol. 4, Workpapers at pp. 26-36.) Those workpapers included certain costs erroneously recorded to one of the underlying cost centers. In Table II-5 on page 10 of Exhibit SCE-04, Vol. 4, we removed the erroneously included costs. SCE advised Cal Advocates of these

1 recorded costs and forecasts for the two accounts are reflected in separate workpapers, both accounts
2 represent the non-labor costs for the Physical Security BPE and there are no significant fluctuations
3 when the non-labor costs are viewed in the aggregate.⁷ Based thereupon, Cal Advocates' recommended
4 reduction to SCE's Test Year forecast for the Physical Security BPE should be rejected and SCE's Test
5 Year 2021 forecast of \$23.588 million should be adopted.

6 **B. Capital Expenditures**

7 **1. SCE's Application**

8 SCE continually enhances its security posture by assessing emerging threats and
9 upgrading physical security systems to meet compliance, life safety, critical infrastructure protection,
10 and system performance objectives. From 2019 to 2023, SCE forecasts \$285 million in capital
11 expenditures for the Physical Security BPE as summarized in Table II-5 below. SCE's capital
12 expenditures for Physical Security are grouped into four categories: (1) Protection of Grid Infrastructure
13 Assets, (2) Protection of Major Business Functions, (3) Protection of Generation Assets, and (4) NERC
14 Compliance programs. For 2019, SCE has updated its forecast to reflect 2019 recorded expenditures in
15 all four categories.⁸

circumstances in our response to PubAdv-SCE-007-MW5, Question 5, which is included in the Appendix at p. A-1.

⁷ Exhibit SCE-04, Volume 4, p. 10 (Figure II-5).

⁸ Please refer to Mr. Snow's testimony in Exhibit SCE-12, Volume 1, detailing SCE's position that 2019 recorded capital expenditures should be adopted.

Table II-5
Physical Security
Capital Expenditures
2014-2019 Recorded/2020-2021 Forecast
Summary of SCE, Cal Advocates, and TURN Position
(Nominal \$000)

Line #	GRC Activity	SCE Recorded						SCE Forecast		
		2014	2015	2016	2017	2018	2019	2020	2021	Total 2020-2021
1	Protection of Grid Infrastructure Assets ^[1]		16,715	25,596	14,386	12,806	12,952	38,652	27,715	66,367
2	Protection of Major Business Function Capital	2,114	8,881	896	10,153	13,022	9,581	9,988	13,424	23,412
3	Protection of Generation Assets ^[2]						1,794	2,471	3,211	5,682
4	NERC Compliance Programs	11,928	34,055	5,465	23,350	37,604	31,572	13,342	7,386	20,728
5	Protection of Major Business Assets ^[3]		16	382	3					
6	Security Technology Operations and Maintenance ^[4]	948	1,398	666	62					
7	Total	14,990	61,065	33,005	47,954	63,432	55,899	64,454	51,735	116,189

[1] Protection of Grid Infrastructure Assets GRC activity was created in 2015.
[2] Protection of Generation Assets GRC activity was created in 2019.
[3] Protection of Major Business Assets GRC activity was created temporarily.
[4] Security Technology Operations and Maintenance GRC activity was discounted as of 2017.

2. Cal Advocates

a) Cal Advocates' Position

Cal Advocates recommends adopting 2019 recorded capital expenditures for all four programs.⁹ Cal Advocates does not oppose SCE's 2020 and 2021 forecasts of capital expenditures for three of the programs (namely, Protection of Major Business Functions, Protection of Generation Assets and NERC Compliance programs.)¹⁰

With respect to the Protection of Grid Infrastructure Assets program, Cal Advocates recommends using a five-year average of recorded expenditures from 2015 to 2019 expenditures to forecast program expenditures during 2020 "because it reflects lower 2019 capital spending." Cal Advocates' recommended forecast for 2021 is based on a two percent escalation of its 2020 forecast.¹¹

⁹ Exhibit PAO-7, p. 35.

¹⁰ Exhibit PAO-7, pp. 36-37.

¹¹ Exhibit PAO-7, p. 35.

1 **b) SCE’s Rebuttal to Cal Advocates Position**

2 The Protection of Grid Infrastructure Assets program involves security
3 enhancements around key grid assets such as large substations, which have been targeted by physical
4 attacks in previous years. The security enhancements include perimeter intrusion detection, integrated
5 access control, alarm system coordination with the Edison Security Operations Center (ESOC) and
6 video surveillance. The program components and related descriptions are shown below.¹²

***Table II-6
Grid Infrastructure Protection Program Components***

Program Components	Description
Tier Program	Installation of security measures at most critical facilities based on the criticality of need and the potential impact of a security breach.
SB-699	Ensuring appropriate actions are taken to protect and secure critical electrical distribution system assets from physical threats that could disrupt safe and reliable electric service.
Substation Fencing and Lighting Enhancement Program	Addresses public and employee safety, as well as system reliability risks created by unauthorized and malicious intrusions into substations. The program intends to minimize threats of trespassing, thefts, and security breaches.
Life-Cycle Replacement and Renewal Program	Ongoing replacement of security equipment at substations in anticipation of failure, as well as the replacement upon failure of degraded security equipment that are no longer technologically viable.
System Reliability Program	Support security system reliability through projects designated to close technology gaps identified by the technical team during the assessment of security infrastructure.

7 Cal Advocates’ recommendations for reductions to the 2020 and 2021 forecasts
8 for the Protection of Grid Infrastructure Assets program should be rejected. Cal Advocates’ proposal
9 relies solely upon SCE’s lower level of expenditures recorded during 2019 as compared to its 2019
10 forecast submitted with the GRC Application. As an initial matter and as stated above, SCE has updated
11 its 2019 forecast to reflect the 2019 recorded expenditures. As such, the lower level of expenditures than
12 initially forecast during 2019 is already reflected in SCE’s updated forecast for the program. Cal
13 Advocates’ recommendation should also be rejected for the reasons that follow.

¹² This chart was included in SCE-04, Volume 4 at page 32 (Table II-11) and is included here for ease of reference.

1 First, although Cal Advocates proposed the use of a five year average of costs
2 from “[2015] through recorded 2019”,¹³ Cal Advocates calculated this average using nominal dollars,
3 rather than constant dollars, rendering the calculation inconsistent with prevailing Commission
4 guidance.¹⁴ The use of an averaging methodology across multiple years should apply constant dollar
5 figures to normalize escalations in spend due to inflationary pressures. This is the methodology the
6 Commission has adopted for similar capital expenditures that are forecast based on a historical average.
7 The five-year average of expenditures from 2015 to 2019 is \$17.307 million applying constant dollars as
8 compared to the \$16.491 million cited by Cal Advocates based on nominal dollars calculation.¹⁵

9 Second, as discussed in SCE’s data request responses, the variance between the
10 2019 forecast submitted at the time of the GRC submission (in September 2019) and the 2019 recorded
11 expenditures arose from certain Tier 2 projects within the Tier Program component of the Protection of
12 Grid Infrastructure program being delayed until 2020 due to competing work on NERC CIP 014 (i.e.
13 Tier 1) projects.¹⁶ The Tier 2 projects covering 220KV and 500KV substations, which are not subject to
14 the NERC CIP compliance requirements, are a risk-adapted, scaled-down version of the Tier 1 projects.
15 As discussed in SCE’s direct testimony, the completion of Tier 1 projects was delayed due to design and
16 scope changes following consultation with the Western Electric Coordinating Council and permitting
17 delays with local authorities.¹⁷ The resulting scope and design changes to the Tier 1 projects also
18 impacted the design and scope of the Tier 2 projects which consequently were pushed past 2019 and into
19 the subsequent years. Hence, Cal Advocates’ reliance on the lower level of expenditures in 2019 does
20 not warrant a reduction in future year forecasts when the delayed projects are now scheduled to
21 commence.¹⁸

¹³ Although Cal Advocates’ testimony references “2016 through recorded 2019”, this appears to be a typo as Cal Advocates also references application of a five-year average. *See* Exhibit PAO-7, p. 35, lines 16-18.

¹⁴ *See*, e.g. D.04-07-022, p. 195 (“...an averaging approach to capital expenditures estimates requires correction to account for the effects of inflation”). *See* also, Exhibit SCE-04, Vol. 2 (SCE’s storm response capital expenditures are forecast on the basis of a five-year average utilizing constant dollar terms).

¹⁵ *See* Appendix, p. A-2 (SCE’s constant dollar calculation of five-year average expenditures for the program from 2015-2019).

¹⁶ *See* Appendix, p. A-3 (SCE’s Response to TURN-056, Question 3 discussing the variance between 2019 forecast and recorded expenditures).

¹⁷ *See* Exhibit SCE-04, Volume 4, pp. 45-46.

¹⁸ Notably, due to the nature of the covered facilities, the expenditures for the Tier 2 projects are almost entirely FERC jurisdictional.

1 Finally, Cal Advocates does not appear to take issue with SCE’s testimony and
2 supporting materials detailing the need for the projects under the Protection of Grid Infrastructure Assets
3 program or the basis of SCE’s forecasts for the program during 2020 and 2021. SCE provided detailed
4 workpapers with its direct testimony and additional supporting materials in response to data requests
5 supporting the forecast expenditures for the Protection of Grid Infrastructure Assets program.¹⁹ Cal
6 Advocates’ testimony does not challenge the validity of any of this supporting material or otherwise
7 dispute the justification and need for this vital program. The lower level of expenditures in 2019 due to
8 the delayed Tier 2 projects means those projects will occur in the subsequent years and Cal Advocates’
9 recommended reduction would negatively impact SCE’s ability to deploy these important security
10 measures at critical facilities. As such, Cal Advocates’ recommended reductions to the 2020 and 2021
11 forecasts for the Protection of Grid Infrastructure Program should be rejected.

12 **3. Conclusion**

13 Cal Advocates’ recommended reductions to the 2020 and 2021 forecasts for the
14 Protection of Grid Infrastructure Assets Program should be rejected as they solely rely on a lower level
15 of recorded expenditures than originally forecast during 2019. SCE has updated its 2019 forecast to
16 reflect the 2019 recorded expenditures due to the planned Tier 2 projects which were not completed in
17 2019. However, those Tier 2 projects will need to be completed and reducing the 2020-2021 forecasts
18 based on an arbitrary application of a five-year historic average jeopardizes the completion of these
19 essential security improvement projects. As such, SCE respectfully requests that the Commission reject
20 Cal Advocates’ recommendations and adopt SCE’s 2020 and 2021 forecasts for the Protection of Grid
21 Infrastructure Assets program.

¹⁹ See Appendix pp. 4-13 for Protection of Grid Infrastructure Assets program workpapers and Appendix pp. 14 - 37 for SCE’s responses to the following data requests: PubAdv-007, Questions 6 and 13, TURN-020, Questions 14, 16, 17, 20, TURN-032, Question 3, and TURN-056, Questions 7 and 8 discussing the Protection of Grid Infrastructure Assets program forecasts.

Appendix A

SCE-15, Vol. 04

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET P u b A d v - S C E - 0 0 7 - M W 5

To: Public Advocates Office
Prepared by: Clifton Leung
Job Title: Financl Anlys, Sr Advisor
Received Date: 10/18/2019

Response Date: 11/1/2019

Question 05.a:

Regarding Ex. SCE-04, Vol. 4, Workpapers pp. 28 and 34:

- a. The Public Advocates Office summed up the totals for O&M by adding Security Technology and Wildfire Protection/Insider Threat for the total Physical Security O&M which were provided in Ex. SCE-04, Vol. 4, p. 10.
 - i. Please explain the variances shown in the table below.

Response to Question 05.a:

The variance reflected on table included with the Data Request were the result of certain costs erroneously charged to O&M cost center F542902 and subsequently booked to the appropriate capital orders. The costs originally booked to this cost center still appear in the referenced workpapers but were removed from the figures presented in testimony (at SCE-04, Volume 4, page 10) to more accurately show the recorded spend in this activity during 2014, 2015 and 2017.

Converting "Protection of Grid Infrastructure" GRC activity from nominal-to-constant dollars using "Total Transmission Deflation Index".

	2015	2016	2017	2018	2019	5 Yr. Total	5 Yr. Avg.	2020
Capital Expenditures(\$millions)								
(nominal) CalAdv	16.715	25.596	14.386	12.806	12.952	82.455	16.491	16.491
2018 constant, Transmission	18.387	27.592	15.148	12.806	12.602	86.536	17.307	17.307

Escalation Factors (Deflation Index)	2015	2016	2017	2018	2019
Transmission Plant - Deflation Index	1.100	1.078	1.053	1.000	0.973
Source: SCE-07, Vol. 1, p. 92					
Deflation Index used to convert nominal \$-to-constant \$					

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET T U R N - S C E - 0 5 6

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 4/9/2020

Response Date: 4/17/2020

Question 03.a-d:

Refer to the response to TURN-SCE-032 Question 1 and the recorded capital data provided in response to PubAdv-SCE-056-TXB Question 02 Supplemental. Explain the reason for the variance between actual spending and forecasted in 2019 for each of the four categories:

- a. NERC compliance
- b. Protection of generation assets
- c. Protection of grid infrastructure assets and
- d. Protection of major business functions)

Response to Question 03.a-d:

- a. As the difference between the 2019 forecast and recorded costs for NERC Compliance Programs was 5%, there was no material variance.
- b. As the difference between the 2019 forecast and recorded costs for NERC Compliance Programs was less than \$1 million, there was no material variance.
- c. The variance for this GRC activity is attributed to certain Tier 2 projects within the Tier 2 blanket program being delayed until 2020. The Tier 2 delays occurred because of competing work on NERC CIP 014 (Tier 1) projects. Tier 2 design relies on Tier 1 design since it is a scaled-down version. The Tier 2 program are 220KV and/or 500KV substations, and the expenditures are almost entirely FERC jurisdictional.
- d. As the difference between the 2019 forecast and recorded costs for NERC Compliance Programs was 2%, there was no material variance.

**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

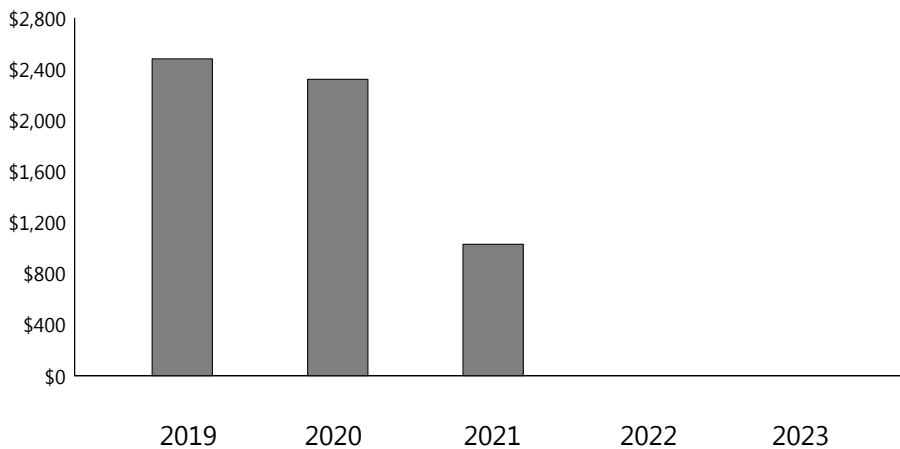
1. Witness: R. White
 2. Asset type: Telecommunications
 3. In-Service date: 12/01/2021
 4. RO Model ID: 818
 5. Pin: 3896
 6. CWBS Element: CIT-00-DM-DM-000188
 CWBS Description: Multi-Tier Sub. Security Perimeter Prog
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	2,480	2,320	1,030	0	0	5,830

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical security
 GRC Activity: Protection of Grid Infrastructure Assets

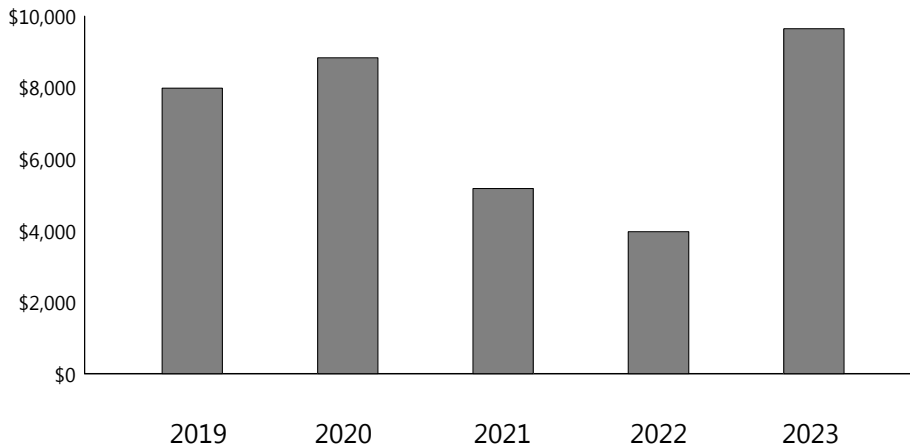
1. Witness: R. White
 2. Asset type: Distribution Substations
 3. In-Service date: Specific Blanket
 4. RO Model ID: 819
 5. Pin: 7573
 6. CWBS Element: CET-ET-IR-ME-757300
 CWBS Description: Substation Fence/Gate (Cu Theft) (CPUC)
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	7,985	8,834	5,182	3,971	9,652	35,623

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical security
 GRC Activity: Protection of Grid Infrastructure Assets

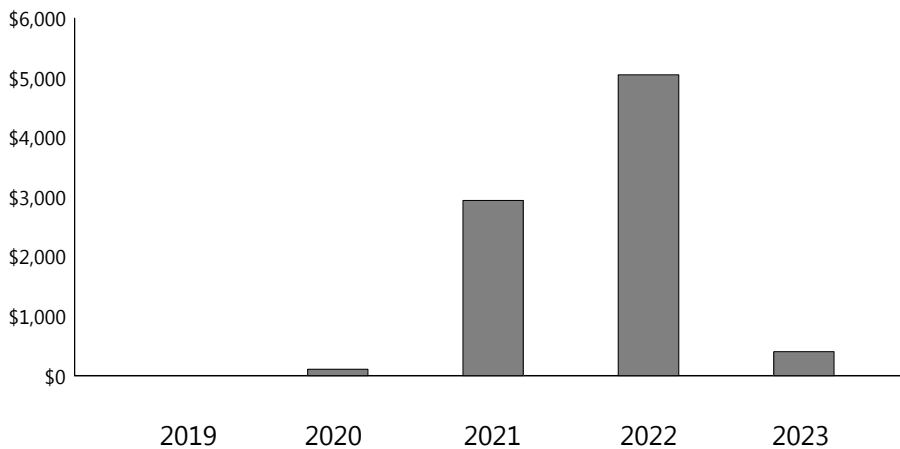
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: Specific Blanket
 4. RO Model ID: 820
 5. Pin: 7573
 6. CWBS Element: CET-ET-IR-ME-757301
 CWBS Description: Substation Fence/Gate (Cu Theft) (FERC)
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	0	110	2,938	5,047	401	8,496

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

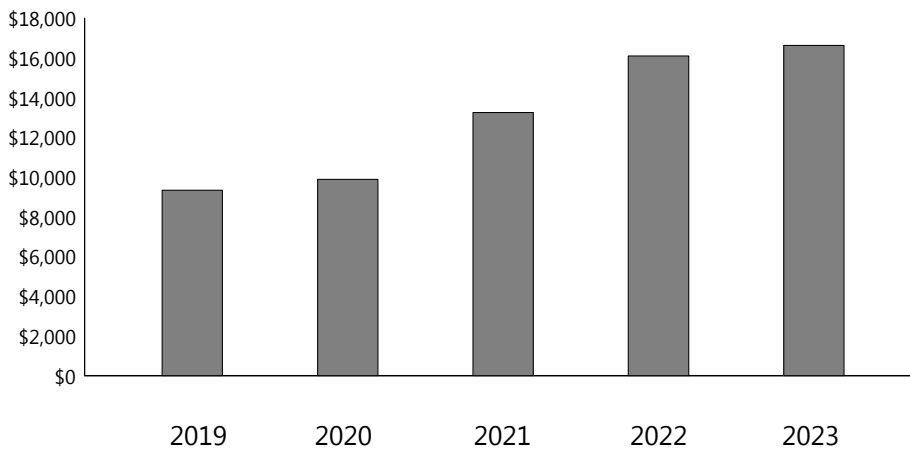
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: Specific Blanket
 4. RO Model ID: 821
 5. Pin: 7949
 6. CWBS Element: COS-00-CS-CS-745400
 CWBS Description: Physical Security Systems - Electric
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	9,341	9,886	13,243	16,093	16,621	65,184

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

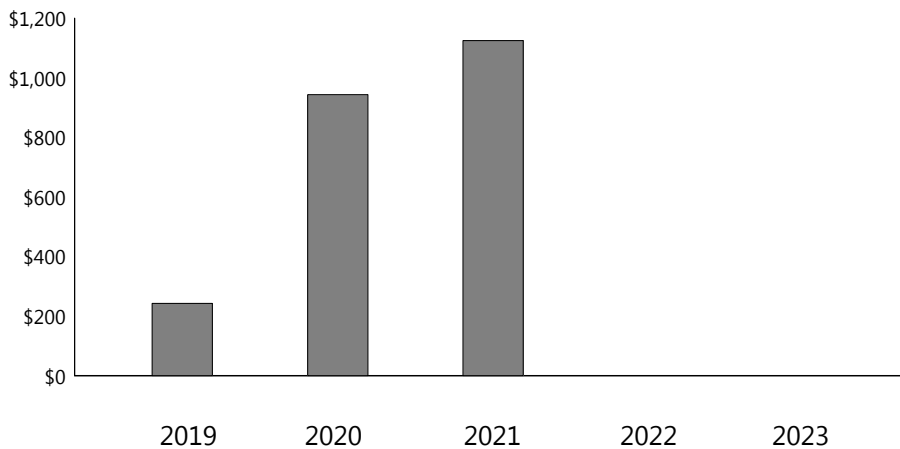
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: 12/01/2017
 4. RO Model ID: 822
 5. Pin: 8042
 6. CWBS Element: CET-ET-IR-ME-804200
 CWBS Description: [Redacted]: Physical Security Tier 2
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	243	944	1,124	0	0	2,311

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

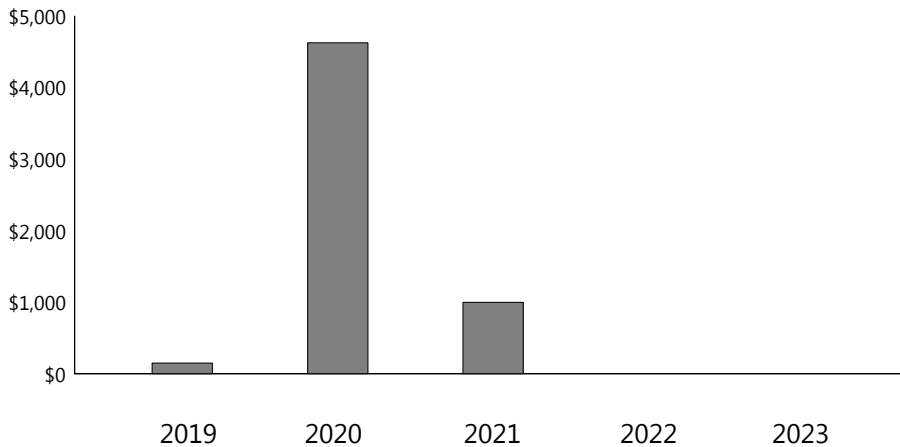
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: 12/01/2017
 4. RO Model ID: 823
 5. Pin: 8042
 6. CWBS Element: CET-ET-IR-ME-804201
 CWBS Description: [Redacted]: Physical Security Tier 2
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	147	4,629	999	0	0	5,775

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

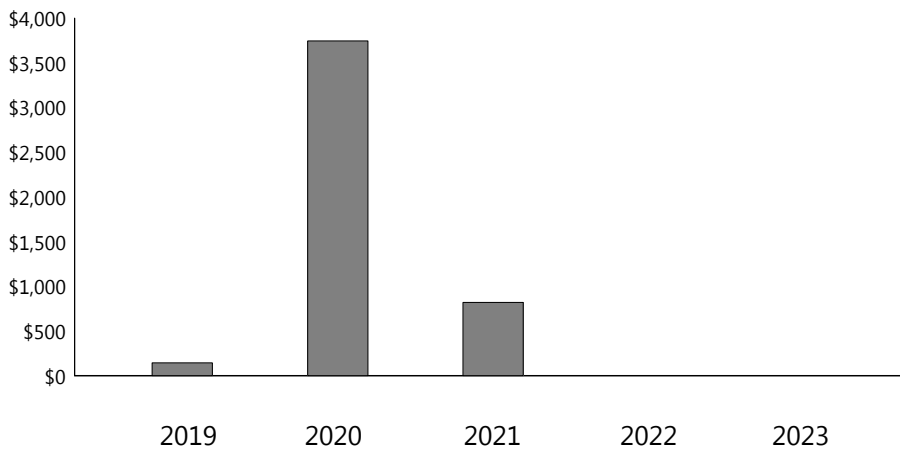
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: Specific Blanket
 4. RO Model ID: 824
 5. Pin: 8042
 6. CWBS Element: CET-ET-IR-ME-804202
 CWBS Description: [Redacted]: Physical Security Tier 2
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	143	3,745	820	0	0	4,709

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

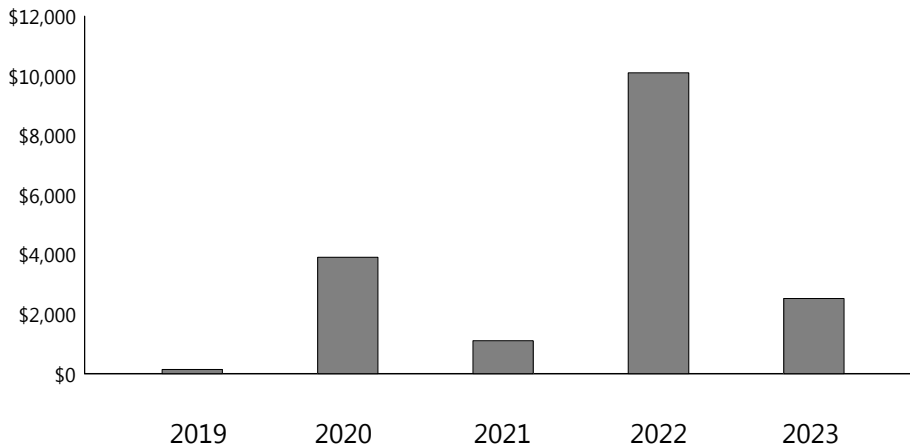
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: Specific Blanket
 4. RO Model ID: 825
 5. Pin: 8042
 6. CWBS Element: CET-ET-IR-ME-804203
 CWBS Description: [Redacted]: Physical Security Tier 2
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	143	3,908	1,105	10,098	2,527	17,782

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

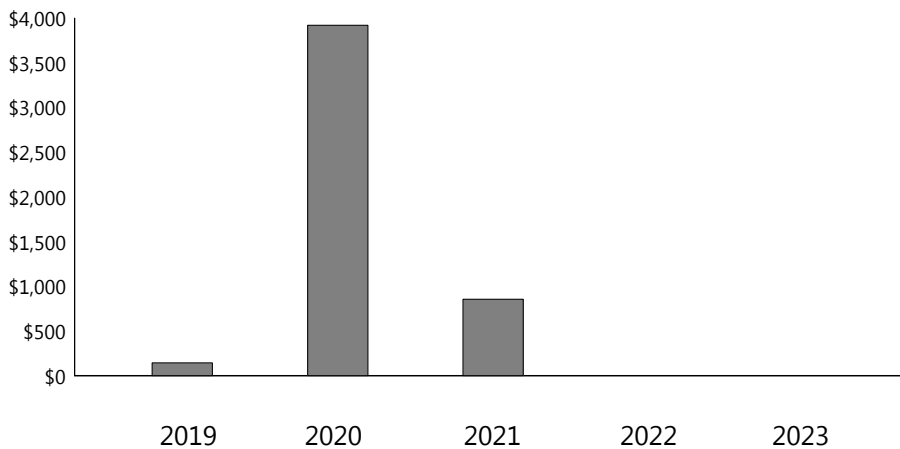
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: Specific Blanket
 4. RO Model ID: 826
 5. Pin: 8042
 6. CWBS Element: CET-ET-IR-ME-804204
 CWBS Description: [Redacted]: Physical Security Tier 2
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	143	3,920	857	0	0	4,919

Due to rounding, totals may not tie to individual items.



**Southern California Edison
2021 GRC Capital Workpapers**

Exhibit: SCE-04 Resiliency
 Volume: Physical Security Volume 4
 Business Plan Group: Resiliency
 Business Plan Element: Physical Security
 GRC Activity: Protection of Grid Infrastructure Assets

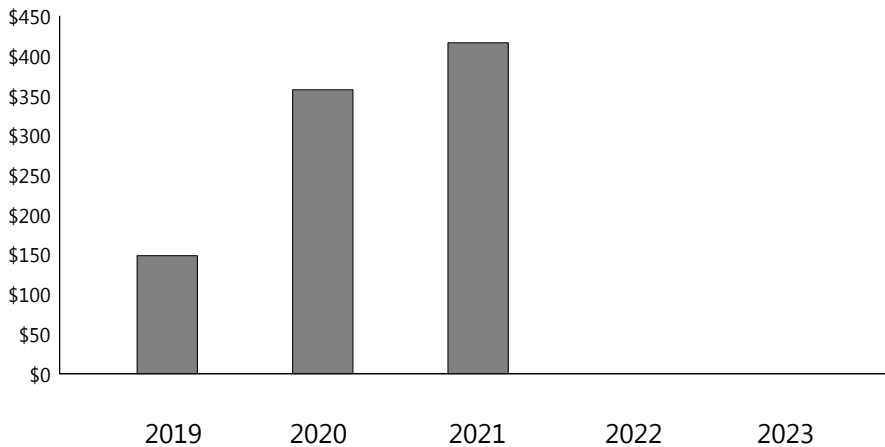
1. Witness: R. White
 2. Asset type: Transmission Substations
 3. In-Service date: 12/01/2021
 4. RO Model ID: 827
 5. Pin: 8042
 6. CWBS Element: CET-ET-IR-ME-804207
 CWBS Description: [Redacted]: Install conduit/AC feeds Corp Sec
 7. SRIIM Eligible: No

Cost Estimates - Nominal (\$000)

2021 GRC - Capital Expenditures Forecast

Year	2019	2020	2021	2022	2023	2019 - 2023 Total
SCE\$	149	357	416	0	0	922

Due to rounding, totals may not tie to individual items.



Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET P u b A d v - S C E - 0 0 7 - M W 5

To: Public Advocates Office
Prepared by: Melissa Ornelas
Job Title: Senior Business Analyst
Received Date: 10/18/2019

Response Date: 11/1/2019

Question 06.a-b:

Regarding Ex. SCE-04, Vol. 4, p. 20:

- a. Please provide all supporting documentation for Protection of Grid Infrastructure Assets for 2020 in the amount of \$38,652 (in 000's).
- b. Please provide all supporting documentation for NERC Compliance Programs for 2019 in the amount of \$33,303 (in 000's).

Response to Question 06.a-b:

- a. SCE objects to use of the phrase “all supporting documentation” in this Data Request as vague, ambiguous and overly broad and potentially burdensome. SCE also objects to the extent that the request calls for the production of documents protected by the attorney-client privilege, attorney work product doctrine, or other relevant protections and privileges. Subject to and without waiving the foregoing objections, SCE responds as follows: Please refer to SCE-04, Vol. 4, p. 38, Table II-15 and attachment titled “PubAdv-SCE-007-MW5.6a” for additional detail on costs and related descriptions.
- b. SCE objects to use of the phrase “all supporting documentation” in this Data Request as vague, ambiguous and overly broad and potentially burdensome. SCE also objects to the extent that the request calls for the production of documents protected by the attorney-client privilege, attorney work product doctrine, or other relevant protections and privileges. Subject to and without waiving the foregoing objections, SCE responds as follows: Please refer to SCE-04, Vol. 4, pp. 43-47 (including Table II-24 on page 47 for forecast details) and SCE-04, Vol.4, Workpapers at pages 1-24, 41-47, and 81.

PubAdv-SCE-007-MW5, Question 6.a

Question: Regarding Ex. SCE-04, Vol. 4, p. 20:

a. Please provide all supporting documentation for Protection of Grid Infrastructure Assets for 2020 in the amount of

Project No.	Cost Type	Short Description	Long Description
Tier 2 Facility - CETETIRME804200 through CETETIRME804207	Labor	Civil Construction	Civil construction for substation pod foundations, associated man-holes, substation paving, walks, and drives, conduit infrastructure, and grounding.
	Material	Electrical/Power	Station light & power, yard drainage system, perimeter barriers, yard lighting system, power lighting system equipment, insulated power/control cable.
	Material	Demo and Site Clean-Up	Security monitoring system, yard drainage system, fence/walls/perimeter, paving, walks and drives, power control cable, conduit, foundations, and underground communication cables.
	Labor	Common	Installation costs for common spread equipment/infrastructure.
Information Technology (IT) - Tier Program IT Component - CIT00DMDM000188	Cost Type	Short Description	Long Description
	Material	Network	16- 4k Switches for security poles, 3560 switches for head end, ASR core switches for site, forescout device for site, 4500 switches for site, patch panels and associated parts, fiber, and inverter power.
	Labor	Cabling/Installation	Cabling and installation for network switches, head end, core switches, forescout, patch panels, fiber, and inverter power.
	Labor	Bandwidth	Substation site bandwidth upgrades.
Tier 2 Facility CS Components	Cost Type	Short Description	Long Description

- COS00CSCS745400	Material	Security Equipment	Security poles, variety of fixed and pan-tilt-zoom cameras, alarm activated lights, central racking system (head-end equipment), field security enclosures, associated components, wires, and conduits.
	Subcontracted Labor	Design, Installation, and System Start-Up	Job walks, conceptual, preliminary and final design, warehouse fabrication, rack installation, equipment pre-testing, offsite pole construction, site mobilization, onsite pole-prepping, pole stand-up, wire-pull, camera, lights, enclosure and associated equipment installations, testing and commissioning, and user acceptance testing (UAT).
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, weekly project status meetings (facilitate), billing, and site inspections.
	Labor	SCE Project Resources	Senior project manager, project manager and analysts: program-level oversight, scope management, risk management, program budget management, procurement process, sponsor level reporting, cross-departmental coordination and oversight, OU resource management, scope management, change management, financial reporting, earned value reporting, vendor status meeting (facilitate), OU status meetings (facilitate).
Subcontracted Labor	Observers, Site Reps, Checkers, and Overhead	Onsite construction observers, site representatives, and checkers; substation safety protocols, processes and procedures, daily progress reporting to SCE, coordination of OU trade work, close-call reporting, and ead and asbestos work.	

SB-699 COS00C8CS745400	Cost Type	Short Description	Long Description
	Material	Security Equipment	Job walks, design and engineering, security poles, variety of fixed and pan-tilt-zoom cameras, central racking system (head-end equipment), field security enclosures, associated components, wires, and conduits.

	Subcontracted Labor	Design, Installation, and System Start-Up	Job walks, conceptual, preliminary and final design, warehouse fabrication, equipment pre-testing, device installation, wire-pull, camera installation and programming, testing and commissioning, and user acceptance testing (UAT).
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, billing, and site inspections.
	Labor	SCE Project Resources	Program-level oversight, scope management, risk management, program budget management.

Substation Fence & Lighting CETETIRME757300 & CETETIRME757301	Cost Type	Short Description	Long Description
	Material	Security Equipment, fence, wall toppers, lighting, motion	Replace and install new perimeter Security Fence, grounding, and Lights to latest Security Standards. New perimeter fence to be BetaFence Guardian 5000.
	Subcontracted Labor	Design	Job walks, conceptual, preliminary, and final design, equipment pre-testing, device installation, conduit, lighting installation, testing and commissioning, and site acceptance testing (SAT).
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, billing, site inspections.
	Labor	SCE Project Resources	Program-level oversight, scope management, risk management, schedule management, project management, program budget management.

Drone Detection COS00CSSCS745400	Cost Type	Short Description	Long Description
	Material	Security Equipment	Drone detection equipment, pan-tilt-zoom cameras, head-end equipment and licensing, associated components, wires, and conduits.

	Subcontracted Labor	Design, Installation, and System Start-Up	Job walks, conceptual, preliminary and final design, warehouse fabrication, equipment pre-testing, device installation, wire-pull, camera installation and programming, testing and commissioning, and user acceptance testing (UAT).
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, billing, and site inspections.
	Labor	SCE Project Resources	Program-level oversight, scope management, risk management, program budget management.
Visitor Management COS00CSSCS745400	Cost Type	Short Description	Long Description
	Material	Security Equipment	Visitor management system/equipment, head-end equipment and licensing.
	Subcontracted Labor	Design, Installation, and System Start-Up	Job walks, conceptual, preliminary and final design, equipment pre-testing, device installation, wire-pull, programming, testing and commissioning, and user acceptance testing (UAT).
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, billing, and site inspections.
Labor	SCE Project Resources	Program-level oversight, scope management, risk management, program budget management.	
Network Video Recorders COS00CSSCS745400	Cost Type	Short Description	Long Description
	Material	Security Equipment	HPE servers, camera licenses, high performance encoders, head end equipment racks, wires, cabling, and conduit.

	Subcontracted Labor	Design, Installation, and System Start-Up	Job walks, equipment procurement, warehousing, warehouse fabrication, burn-in and pre-testing, onsite device installation, conduit work, wire-pulling, programming, testing and commissioning, user acceptance testing (UAT). Includes replacement of any existing legacy equipment with new enterprise video management system servers and software.
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, billing, and site inspections.
	Labor	SCE Project Resources	Program-level oversight, scope management, risk management, program budget management.
Emergent Needs COS00CSSCS745400	Cost Type	Short Description	Long Description
	Material	Security Equipment	Variety of emergent work may include new security installations and demolitions as part of new building construction, remodels or new installations. Equipment may include poles, fixed and or pan-tilt-zoom camera, card readers, head end equipment, conduit, door hardware, wiring, cabling, licensing, and other miscellaneous.
	Subcontracted Labor	Design, Installation, and System Start-Up	Job walks, conceptual, preliminary and final design, warehouse fabrication, equipment pre-testing, device installation, wire-pull, camera installation and programming, testing and commissioning, and user acceptance testing (UAT).
	Subcontracted Labor	Vendor Project Management	Documentation, sub-contractor trade management, field verification, day-to-day onsite oversight, resource planning, scheduling, budget management, procurement, delivery and warehousing, project status reporting, billing, and site inspections.
	Labor	SCE Project Resources	Program-level oversight, scope management, risk management, program budget management.

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET P u b A d v - S C E - 0 0 7 - M W 5

To: Public Advocates Office
Prepared by: Melissa Ornelas
Job Title: Senior Business Analyst
Received Date: 10/18/2019

Response Date: 11/1/2019

Question 13.a-b:

Regarding Ex. SCE-04, Vol. 4, p. 38:

- a. Please provide all supporting documentation for Tier 2 Facility for forecast year 2020 in the amount of \$3,908 (in 000's).
- b. Please provide all supporting documentation for Substation Fencing and Lighting for forecast year 2020 in the amount of \$8,834 (in 000's).

Response to Question 13.a-b:

With respect to Questions 13.a and 13.b, SCE objects to use of the phrase “all supporting documentation” as vague, ambiguous and overly broad and potentially burdensome. SCE also objects to the extent that the request calls for the production of documents protected by the attorney-client privilege, attorney work product doctrine, or other relevant protections and privileges. Subject to and without waiving the foregoing objections, SCE responds as follows:

- a. Please see the attachment titled “PubAdv-SCE-007-MW5 Q.13.a-b Attachment” (at Tab 13a) for a breakdown of the 2020 forecast.
- b. Please see the attachment titled “PubAdv-SCE-007-MW5 Q.13.a-b Attachment” (at Tab 13b) for a breakdown of the 2020 forecast.

Regarding Ex. SCE-04, Vol. 4, p. 38:

a. Please provide all supporting documentation for Tier 2 Facility for forecast year 2020 in the amount of \$3.908 (in 000's).

b. Please provide all supporting documentation for Substation Fencing and Lighting

Substation Fencing and Lighting

Cost Object	2020 Forecast
CETETIRME757300 ALLOCATION/OVERHEAD	1,625,742
CETETIRME757300 CONTRACT	4,327,046
CETETIRME757300 LABOR	882,120
CETETIRME757300 MATERIAL	1,992,040
CETETIRME757300 OTHER	7,174
Total	<u>8,834,121</u>

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET T U R N - S C E - 0 2 0

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 2/18/2020

Response Date: 3/3/2020

Question 14.a-c:

Refer to SCE-04 Volume 4, Workpapers page 50. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$35.623 million (quotes, contracts, invoices, etc.).
- b. Explain why these costs are expected to increase and decrease in each year shown.
- c. Provide the actual amount spent in 2019.

Response to Question 14.a-c:

a. The Metal Theft Abatement Program is a perimeter security program that mitigates “higher grade” security risks for Transmission and Distribution (T&D) Substations to support resiliency and enhance public safety. Historical averages from projects similar in scope were used to estimate "Cost at Completion" based on the perimeter linear feet of block wall installation required. This program averages \$1,100 per linear foot to complete a distribution facility. The allocations for Labor, Materials, Contracting, and Overhead (LMCO) are percentage splits based on estimates created at the time the 2019 forecast was developed for the Physical Security Programs. Please see the attachment titled “DATA REQUEST SET TURN-SCE-020, 14 - Table.xlsx” displaying the work order estimates associated with this project that comprise the \$35.623 million total. Due to rounding, totals may not tie to individual items. Please see also SCE’s Response to CalAdv-SCE-0022-MW5, Question 05.b for additional detail.

b. Metal theft abatement applies to both transmission and distribution substations, and the mix varies each year based on risk. Additionally, the work activities at certain facilities is split between years. Please see the attachment titled “DATA REQUEST SET TURN-SCE-020, 14 - Table.xlsx”.

c. SCE will publish 2019 recorded expenses by March 30, 2020.

Subject: Physical Security

Question: Refer to SCE-04 Volume 4, Workpapers page 50. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$35.623 million (quotes, contracts, invoices, etc.).
- b. Explain why these costs are expected to increase and decrease in each year shown.
- c. Provide the actual amount spent in 2019.

2019 Budget CWBS	Work Order Description	FCST 2019	FCST 2020	FCST 2021	FCST 2022	FCST 2023
CET-ET-IR-ME-757300	[Redacted]: Replace fence with security fence and add lights to meet latest security stand standards (106 feet of Fence)	168	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Replace fence with security fence and add lights to meet latest security stand standards (594 feet of fence)	7,360	-	-	-	-
CET-ET-IR-ME-757300	Copper Theft [Redacted]	84,236	-	-	-	-
CET-ET-IR-ME-757300	Copper Theft [Redacted]	50,976	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]-Upgrade Security Fence and Light	804,218	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]-Replace Se	561	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]-Replace	615	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]-Replace Security Fence and Light	7,362	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]-Replace Security Fence and Light	345	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Fen	2,487	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Fence & Lights	3,390,356	200,000	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Fence & Lights	115,000	2,725,581	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Fence & Lights	18,111	-	-	69,395	2,243,762
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Fence & Lights	189,688	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Lights	57,500	230,000	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Replace fence with block wall	1,940,693	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Fence and Lights to Latest security standards (1750 feet of fence)	86,925	1,313,300	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Fence and Lights to Latest security standards (1075 feet of fence)	90,409	772,800	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	2,444,866	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Wall & Lights	91,203	385,825	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade Security Wall & Lights	88,001	575,000	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	948,193	-	-	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	-	-	78,686
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	-	-	93,636
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	-	-	34,304
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	-	75,900	2,454,089
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	-	19,820	178,378
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	-	24,521	792,834
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	95,516	3,088,357	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	-	49,871	573,521	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	91,476	2,957,724	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade security fence and lights	-	43,366	823,962	-	-
CET-ET-IR-ME-757300	[Redacted]: Upgrade fence and perimeter lighting	-	38,623	1,248,817	-	-
CET-ET-IR-ME-757300	[Redacted]	-	-	-	116,530	3,767,812
	Total	7,974,407	8,820,837	5,175,890	3,968,044	9,643,501

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET T U R N - S C E - 0 2 0

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 2/18/2020

Response Date: 3/3/2020

Question 16.a-c:

Refer to SCE-04 Volume 4, Workpapers page 52. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$65.184 million (quotes, contracts, invoices, etc.).
- b. Explain why these costs are expected to increase in each year shown.
- c. Provide the actual amount spent in 2019.

Response to Question 16.a-c:

a. Based on validated construction design for Tier 1 and average historical tier cost for CIP-014 facilities, SCE developed a target base cost for Tier 2 and Tier 3. Based on average linear footage of Tier 1 - Tier 3 sites and typical topology for most sites, the average number of pods has been determined to be 25. Based on average pods costs and considering that the same size and characteristics of Tier 1 facilities will be generally applicable for Tier 2 and Tier 3 sites, costs have been estimated as follows: Tier 1: \$263,000, Tier 2: \$213,000, and Tier 3: \$150,000. The SB-699 yearly cost forecast is based on high-level estimates due to ongoing assessments associated with the SB-699 regulation at the time of this filing. Costs for Detection of UAV Equipment and Installation for years 2020 through 2022 are based on an estimated cost of \$500,000 per site. Visitor Management Equipment and Installation work forecasted for 2021 and 2022 is based on an average of \$30,000 per installation (each point of entry). Network Video Recorder implementations forecasted include implementations in year 2019 through 2021 at an average cost of \$75,000 per site and capital refresh plans in 2023 at the same average cost. Finally, based on historical data and pace of expected work, Emergent Needs capital expenditures are based on average cost of 100,000 per site with 15 sites planned per year for years of 2019 through 2023. Deferred substation work from 2018 and 2019 is also included which also contributed to the increase. (Please see also, SCE's Response to TURN-SCE-020, Question 9.a. for additional detail.)

b. Please see Response to subpart (a).

c. SCE will publish 2019 recorded expenses by March 30, 2020.

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET T U R N - S C E - 0 2 0

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 2/18/2020

Response Date: 3/3/2020

Question 17.a-c:

Refer to SCE-04 Volume 4, Workpapers page 53. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$2.311 million (quotes, contracts, invoices, etc.).
- b. The project in service date is listed as 12/1/2017. Is this project already completed and in service? If so, explain why additional funding is needed.
- c. Provide the actual amount spent in 2019.

Response to Question 17.a-c:

- a. Tier Program is a block wall program that mitigates “higher grade” security risks for Transmission and Distribution (T&D) Substations. Historical averages from projects similar in scope were used to estimate "Cost at Completion" based on the perimeter linear feet of block wall installation required. This program averages \$1,100 per linear foot to complete a facility. The allocations for Labor, Materials, Contracting, and Overhead (LMCO) are percentage splits based on estimates created at the time the 2019 forecast was developed for the Physical Security Programs. Please see the attachment entitled “DATA REQUEST SET TURN-SCE-020, 17 - Table.xlsx” for work order estimates associated with this project that comprise the total. Due to rounding, totals may not tie to individual items. Please see also, SCE’s Response to CalAdv-SCE-0022-MW5 Question: 05.b for further detail.
- b. The original In-Service date for implementation was 2017, but the Tier 2 program is on hold overall due to scope refinements and security modifications that will be applied to this facility. Work has been performed at this facility, including the perimeter wall, but security technology work still needs to be completed.
- c. SCE will publish 2019 recorded expenses by March 30, 2020.

Subject: Physical Security

Question: Refer to SCE-04 Volume 4, Workpapers page 53. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$2.311 million (quotes, contracts, invoices, etc.).
- b. The project in service date is listed as 12/1/2017. Is this project already completed and in service? If so, explain why additional funding is needed.
- c. Provide the actual amount spent in 2019.

2019 Budget CWBS	Work Order Description	FCST 2019	FCST 2020	FCST 2021	FCST 2022	FCST 2023
CET-ET-IR-ME-804200	[Redact] Physical Security Tier 2	242,563	940,455	1,122,916	-	-
	Total	242,563	940,455	1,122,916	-	-

Southern California Edison
A.19-08-013 – SCE 2021 General Rate Case

DATA REQUEST SET T U R N - S C E - 0 2 0

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 2/18/2020

Response Date: 3/3/2020

Question 20.a-b:

Refer to SCE-04 Volume 4, Workpapers page 56. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$17.782 million (quotes, contracts, invoices, etc.).
- b. Provide the actual amount spent in 2019.

Response to Question 20.a-b:

- a. Tier Program is a block wall program that mitigates “higher grade” security risks for Transmission and Distribution (T&D) Substations. Historical averages from projects similar in scope were used to estimate "Cost at Completion" based on the perimeter linear feet of block wall installation required. This program averages \$1,100 per linear foot to complete a facility. The allocations for Labor, Materials, Contracting, and Overhead (LMCO) are percentage splits based on estimates created at the time the 2019 forecast was developed for the Physical Security Programs. Please see the attachment entitled “DATA REQUEST SET TURN-SCE-020, 20 - Table.xlsx” that has the work order estimates associated with this project comprising the \$17.782 million total. Due to rounding, totals may not tie to individual items. Please see also SCE’s Response to CalAdv-SCE-0022-MW5 Question: 05.b for further detail on the "Cost of Completion" estimation methodology.
- b. SCE will publish 2019 recorded expenses by March 30, 2020.

Subject: Physical Security

Question: Refer to SCE-04 Volume 4, Workpapers page 56. Protection of Grid Infrastructure Assets.

- a. Provide calculations and documentation supporting the amount of \$17.782 million (quotes, contracts, invoices, etc.).**
- b. Provide the actual amount spent in 2019.**

2019 Budget CWBS	Work Order Description	FCST 2019	FCST 2020	FCST 2021	FCST 2022	FCST 2023
CET-ET-IR-ME-804203	Tier 2 [Redacted]	-	-	250,000	10,102,958	2,525,739
CET-ET-IR-ME-804203	[Redacted] Physical Security Tier 2	143,000	3,895,414	853,651	-	-
	Total	143,000	3,895,414	853,651	-	-

Southern California Edison
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DATA REQUEST SET T U R N - S C E - 0 3 2

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 3/9/2020

Response Date: 3/23/2020

Question 03.a-b:

Refer to the response to TURN-SCE-020 Question 14.a.

- a. Provide the calculation of the historical averages for projects similar in scope supporting the \$1,100 per linear foot to complete a distribution facility. Provide all calculations and supporting documentation.
- b. State whether the same formula was used for the \$1,100 per linear foot in the responses to TURN-SCE-021, Questions 15, 17, 18, 19, 20, 21, and 22. If not, provide the calculations.

Response to Question 03.a-b:

- a. Please see the attachment titled “DATA REQUEST SET TURN-SCE-032, 03.xlsx” or the linear-square foot methodology. Please refer to the first tab for the responses to TURN-SCE-20, Questions 14 and 15. Please refer to the second tab for the responses to TURN-SCE-20, Questions 17 through 22.

For Copper Theft related projects referenced in TURN-SCE-20, Questions 14 and 15, historical costs include 25 projects that have completed construction and have been in-service. Average cost per linear foot, for each project was calculated by total project cost/linear feet of the installation. The average of the unit costs across the 25 projects was applied to linear feet for the proposed project to derive the forecast.

For Tier 2 related projects referenced in TURN-SCE-20, Questions 17, 18, 19, 20, 21, and 22, no historical data was available as these are new projects. Referenced historical costs include three NERC CIP 014 projects from two different block wall programs that have been completed and have been in-service and are relatively similar in scope. Average cost per linear foot, for each project was calculated by total project costs/ linear feet of the installation. The average of the Program was then calculated from the total population of the three projects. Previously completed projects may contain scope variations and are included in the sample of historical costs (e.g., block wall, lighting, castle spikes, etc.). Life cycle of Block Wall projects traditionally complete within 2 to 3 years, depending variables for weather conditions, substation site conditions (e.g., environmental, demo, etc.), county permitting (e.g., permit and licensing), and material delays.

- b. The same linear square foot formula was used for the items referenced in TURN-SCE-20, Questions 14, 15, 17, 18, 19, 20, 21 and 22.

Program	Pin Number	Linear Feet	Site	Total 2014	Total 2015	Total 2016	Total 2017	Total 2018	Total 2019	ITD	Average Per/Ln Ft.
Security Light & Fence	7573	670	Site A	\$ 345,762	\$ 117,337	\$ 160,470	\$ 623	-	-	\$ 624,192	\$ 932
Security Light & Fence	7573	1390	Site B	\$ 524,120	\$ 294,339	\$ 18,877	-	-	-	\$ 837,336	\$ 602
Security Light & Fence	7573	2825	Site C	-	\$ 52,258	\$ 794,469	\$ 390,051	\$ 107,525	\$ 322	\$ 1,344,624	\$ 476
Security Light & Fence	7573	1223	Site D	-	\$ 45,074	\$ 824,044	-\$ 34,916	\$ 0	-	\$ 834,202	\$ 682
Security Light & Fence	7573	4086	Site E	-	\$ 111,363	\$ 2,557,889	\$ 3,434	\$ 1	-	\$ 2,672,688	\$ 654
Security Light & Fence	7573	1390	Site F	-	\$ 141,542	\$ 696,164	\$ 2,010	\$ 0	-	\$ 839,715	\$ 604
Security Light & Fence	7573	4086	Site G	-	\$ 117,803	\$ 1,383,003	-	\$ 640	-	\$ 1,501,445	\$ 367
Security Light & Fence	7573	594	Site H	-	\$ 441,856	\$ 104,043	\$ 87	\$ 612	-	\$ 546,598	\$ 920
Security Light & Fence	7573	912	Site I	-	\$ 572,958	\$ 49,531	-	\$ 0	-	\$ 622,490	\$ 683
Security Light & Fence	7573	1280	Site J	-	\$ 193,178	\$ 946,270	-	\$ 982	-	\$ 1,140,429	\$ 891
Security Light & Fence	7573	1280	Site K	-	\$ 818,243	\$ 46,474	\$ 87	-	-	\$ 864,804	\$ 676
Security Light & Fence	7573	975	Site L	-	\$ 229,926	\$ 912,289	-\$ 2,406	\$ 0	-	\$ 1,139,809	\$ 1,169
Security Light & Fence	7573	1137	Site M	-	\$ 28,004	\$ 1,188,283	\$ 414,882	\$ 47,812	\$ 12,730	\$ 1,691,711	\$ 1,488
Security Light & Fence	7573	3057	Site N	-	-	\$ 78,576	\$ 2,183,594	\$ 38,085	\$ 369	\$ 2,300,624	\$ 753
Security Light & Fence	7573	2950	Site O	-	-	\$ 78,140	\$ 2,569,500	-\$ 327	\$ 89,794	\$ 2,737,106	\$ 928
Security Light & Fence	7573	7214	Site P	-	-	\$ 110,067	\$ 3,598,622	\$ 420,793	\$ 66,480	\$ 4,195,962	\$ 582
Security Light & Fence	7573	1208	Site Q	-	-	-	\$ 75,403	\$ 956,173	\$ 610	\$ 1,032,186	\$ 854
Security Light & Fence	7573	1430	Site R	-	-	-	\$ 245,296	\$ 1,901,315	\$ 908,396	\$ 3,055,008	\$ 2,136
Security Light & Fence	7573	1136	Site S	-	-	-	\$ 139,089	\$ 998,421	\$ 587	\$ 1,138,097	\$ 1,002
Security Light & Fence	7573	1266	Site T	-	-	-	\$ 74,180	\$ 948,042	-\$ 1,041	\$ 1,021,182	\$ 807
Security Light & Fence	7573	1062	Site U	-	-	-	\$ 841,699	\$ 322,484	\$ 649	\$ 1,164,832	\$ 1,097
Security Light & Fence	7573	1563	Site V	-	-	-	\$ 1,315,078	\$ 38,999	\$ 1,927	\$ 1,356,003	\$ 868
Security Light & Fence	7573	1209	Site W	-	-	-	-	\$ 58,897	\$ 239,351	\$ 298,248	\$ 247
Security Light & Fence	7573	961	Site X	-	-	-	-	\$ 73,812	\$ 801,573	\$ 875,384	\$ 911

\$ Per Lr Ft. Avg.	\$ 847
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Assumptions:

Historical costs include 25 projects that have completed construction, and have been in-serviced (ZRFS'd). Average cost per linear foot, for each project was calculated by total inception-to-date costs/ linear feet of the installation. The average of the unit costs across the 25 projects was applied to linear feet for the proposed project to derive the forecast costs.

Projects currently under construction have been excluded from the sample of historical averages.

Projects with significant scope variations have been excluded from the sample of historical costs (e.g., block wall/beta fence combined scope).

Life cycle of Security Light & Fence projects traditionally complete within 2 to 3 years, depending variables for weather conditions, substation site conditions (e.g., environmental, demo, etc.), county permitting (e.g., permit and licensing), and material delays.

Note: Additional details can be found on the LMCO Cost @ Completion Summary tab. Employee and Vendor data have been excluded for confidentiality purposes.

Historical Block Wall Programs (Completed)

Substation	Linear Feet	Engineering	Material	Construction	Overheads	IMM's	CAC	Average per Linear Foot (CAC, includes, OH & IMM's)
Site A (Block Walls)	10,000	593,308	835,129	3,429,676	681,791	96,116	5,646,020	564.60
Site B (Block Walls)- /NERC/CIP14	3,742	330,621	1,697,622	1,972,556	430,125	47,760	4,482,426	1,198
Site C (Block Walls)- NERC/CIP14	6,005	463,887	467,989	7,793,641	1,071,507	74,277	9,877,307	1,645
Historical Averages	6,582	462,605	1,000,247	4,398,624	727,808	72,718	6,668,585	1,136

Notes:

Both Programs may have included scope for Block Wall installation, grounding mitigation, motion sensors, switch racks/perimeter lighting, wall toppers/castlespikes, security conduit, pull boxes, and additional NERC/CIP security measures.

Assumption:

Historical costs include 3 NERC projects that have been completed/ in-serviced (ZRFS'd), and are relatively similar in scope. Average cost per linear foot, for each project was calculated by total inception-to-date costs/ linear feet of the installation. The average of the Program was then calculated from the total population of 3 projects, from 2 different block wall programs.

Previously completed projects may contain scope variations, and are included in the sample of historical costs (e.g., block wall, lighting, castle spikes, etc.).

Life cycle of Block Wall projects traditionally complete within 2 to 3 years, depending variables for weather conditions, substation site conditions (e.g., environmental, demo, etc.), county permitting (e.g., permit and licensing), and material delays.

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DATA REQUEST SET T U R N - S C E - 0 5 6

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 4/9/2020

Response Date: 4/17/2020

Question 07:

Refer to the response to SCE-04Volume 04 page 20, Table II-4.

a. Refer to SCE-04 Vol 4 workpaper page 41. Provide calculations and documentation supporting the amount of \$ 1.403 million shown (quotes, contracts, invoices, etc.).

Response to Question 07:

The forecast is based on the work necessary to meet the NERC compliance requirements. Forecasts were developed using vendor milestone schedules, anticipated vendor material delivery dates, and internal labor rates for project execution. Please see attachment, "DATA REQUEST SET TURN-SCE-56, Q07", for additional details regarding the calculations. The vendor documents all relate to FERC critical infrastructure sites. SCE has not included the specific quotes because of the confidentiality associated with these facilities and because the costs of these projects are FERC jurisdictional.

DATA REQUEST SET TURN-SCE-056 Question 07

Refer to the response to SCE-04 Volume 04 page 20, Table II-4.

a. Refer to SCE-04 Vol 4 workpaper page 41. Provide calculations and documentation supporting the amount of \$ 1.403 million shown (quotes, contracts, invoices, etc.).

Cost Element Group	Cost Element Description	2019	2020	2021	2023	2024
ALLOCATION/O VERHEAD	Alloc Planning Only	134,824	85,951	37,347	0	0
CONTRACT	Cnstrctn Srvcs-PIng	358,845	228,765	99,401	0	0
LABOR	Labor-NT Plan Only	56,563	36,059	15,668	0	0
LABOR	Labor-PT Plan Only	16,592	10,577	4,596	0	0
MATERIAL	Matl-Other-PIng Only	165,201	105,316	45,761	0	0
OTHER	Other Planning Only	595	379	165	0	0
Total		732,621	467,047	202,937	0	0

2019-2023 Total
1,402,606

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DATA REQUEST SET T U R N - S C E - 0 5 6

To: TURN
Prepared by: Earl Lee Hall
Job Title: Senior Advisor
Received Date: 4/9/2020

Response Date: 4/17/2020

Question 08:

Refer to the response to SCE-04 Volume 04 page 20, Table II-4.

b. Refer to SCE-04 Vol 4 workpaper page 43. Provide calculations and documentation supporting the amount of \$ 19.572 million shown (quotes, contracts, invoices, etc.).

Response to Question 08:

The forecast is based on the anticipated work necessary to meet the NERC compliance requirements. Forecasts were developed using vendor milestone schedules, anticipated vendor material delivery dates, and internal labor rates for project execution. Please see attachment titled DATA REQUEST SET TURN-SCE-056 Q08 for additional detail on the calculations. The vendor documentation relates to FERC critical infrastructure sites. SCE has not included the vendor documentation because of the confidentiality associated with these facilities and because the costs of these projects are FERC jurisdictional.

DATA REQUEST SET TURN-SCE-056 Question 08

Refer to the response to SCE-04 Volume 04 page 20, Table II-4.

b. Refer to SCE-04 Vol 4 workpaper page 43. Provide calculations and documentation supporting the amount of \$ 19.572 million shown (quotes, contracts, invoices, etc.).

Cost Element Group	Cost Element Description	2019	2020	2021	2023	2024
ALLOCATION/O VERHEAD	Alloc Planning Only	2,559,210	487,855	554,810	0	0
CONTRACT	Cnstrctn Srvcs-Plng	6,811,547	1,298,465	1,476,673	0	0
LABOR	Labor-NT Plan Only	1,073,673	204,671	232,761	0	0
LABOR	Labor-PT Plan Only	314,942	60,036	68,276	0	0
MATERIAL	Matl-Other-Plng Only	3,135,829	597,774	679,815	0	0
OTHER	Other Planning Only	11,293	2,153	2,448	0	0
Total		13,906,493	2,650,953	3,014,784	0	0

2019-2024 Total
19,572,231