



A Sempra Energy utility®

**Risk Assessment and Mitigation Phase  
(Chapter SDG&E-Risk-2-WP)**

**Electric Infrastructure Integrity  
Workpapers**

**May 17, 2021**

## 2021 RAMP

SDG&amp;E-Risk-2-WP

Risks Recorded and Forecast Costs Incurred Workpaper

Tab: Incurred\$

(2020 Direct \$'000)

RAMP Chapter ID	RAMP Chapter Name	Control / Mitigation ID	Control / Mitigation Name	RECORDED DOLLARS								FORECAST DOLLARS								Notes		
				O&M				Capital				O&M				Capital						
				2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2022	2023	2024	2022	2023	2024			
SDG&E-Risk-2	Electric Infrastructure Integrity	C1	Overhead Public Safety (OPS) Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)		
SDG&E-Risk-2	Electric Infrastructure Integrity	C2	GO165 Pole Replacement Reinforcement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,131	\$ 7,788	\$ 9,182	\$ 7,387	\$ 7,227	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C3	A&V Modernization & Upgrades	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 395	\$ 259	\$ 259	\$ 259	\$ 259	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C4-T1	Distribution Overhead Switch Replacement Program - SCADA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 10	\$ 24	\$ 154	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C4-T2	Distribution Overhead Switch Replacement Program - Gang	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 5	\$ 12	\$ 77	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C4-T3	Distribution Overhead Switch Replacement Program - Hook	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5	\$ 38	\$ 89	\$ 579	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C5	Management of Overhead Distribution Service (Non-CMP)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,133	\$ 1,805	\$ 7,107	\$ 6,849	\$ 6,487	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C6	Vegetation Management (non-HFID)	\$ 9,387	\$ 9,738	\$ 11,598	\$ 13,739	\$ 31,900	\$ -	\$ -	\$ -	\$ -	\$ 31,805	\$ 39,269	\$ 34,397	\$ 42,491	\$ 37,201	\$ 45,954	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C7	Residential Line Protection Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,291	\$ 7,474	\$ 9,666	\$ 9,701	\$ 7,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C8	Aviation Protection Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 116	\$ 118	\$ 0	\$ -	\$ 209	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C9	Underground Cable Replacement Program - Reactive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,827	\$ 3,815	\$ 3,143	\$ 5,286	\$ 5,407	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10-T1	Underground Cable Replacement Program - Proactive - UG Feeder	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 437	\$ 286	\$ 236	\$ 49	\$ 213	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10-T2	Underground Cable Replacement Program - UG Branch	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,303	\$ 5,437	\$ 4,478	\$ 940	\$ 4,047	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10-T3	Underground Cable Replacement Program - Proactive - North	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C11	Harbor Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C12	Tee Modernization Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,519	\$ 2,396	\$ 602	\$ 1,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C13	Replacement of Live Equipment - Reactive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 599	\$ 31	\$ 425	\$ 21	\$ 406	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C14	Replacement of Live Equipment - Proactive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 442	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C15	DOE Switch Replacement - Underground	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,467	\$ 188	\$ 2,311	\$ 5,930	\$ 5,731	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C16	GO165 Corrective Maintenance Program - Underground	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,699	\$ 2,732	\$ 10,379	\$ 12,018	\$ 16,365	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C17	GO165 Manhole Vault Restoration Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,533	\$ 3,988	\$ 4,266	\$ 2,812	\$ 4,794	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C18	Management of Underground Distribution Service (Non-CMP)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,715	\$ 1,384	\$ 3,241	\$ 3,279	\$ 3,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C19	Management of Substation Reliability Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,318	\$ 3,050	\$ 7,056	\$ 1,734	\$ 1,218	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T1	Substation Reliability for Distribution Components - Baritiques	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T2	Substation Reliability for Distribution Components - Bernardo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T3	Substation Reliability for Distribution Components - Chiricata 12kV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T4	Substation Reliability for Distribution Components - Laguna Niguel 12kV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T5	Substation Reliability for Distribution Components - Miramar 12kV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T6	Substation Reliability for Distribution Components - Scripps 12kV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T7	Substation Reliability for Distribution Components - Pacific Beach	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20-T8	Substation Reliability for Distribution Components - Coronado 69/12kV Transformer Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C21	Distribution Substation Obsolete Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,616	\$ 5,896	\$ 2,683	\$ 51	\$ 4,126	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C22	Emergency Transformer and Switchgear	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,269	\$ -	\$ -	\$ 739	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C23	San Mateo Substation Rebuild	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 50	\$ 6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C24	Urban Substation Rebuild	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 916	\$ 5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C25	Substation Relocation GO-374	\$ 697	\$ 474	\$ 685	\$ 1,054	\$ 1,580	\$ -	\$ -	\$ -	\$ -	\$ 1,387	\$ 1,714	\$ 1,442	\$ 1,782	\$ 1,500	\$ 1,853	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C26	Power Quality Monitoring and Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 211	\$ 59	\$ 22	\$ 889	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C27	Distribution Substation SCADA Expansion	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,234	\$ 766	\$ 167	\$ -	\$ 226	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C28	Field SCADA RTU Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,072	\$ 2,142	\$ 129	\$ 1,729	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C29	SCADA Capacitors	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 68	\$ 290	\$ 173	\$ 183	\$ 61	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	M1	Non-HFID Wireless Fault Indicator OH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	M2	Line Loss Detection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A1	Customer Owned E-Structure Reconfigure	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A2-T1	Modernize Manual Switches - OH	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A2-T2	Modernize Manual Switches - UG	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A3	Avian Protection Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)	

## NOTES:

[1] The figures provided are direct charges and do not include company loaders, with the exception of vacation and sick. The costs are also in 2020 dollars and have not been escalated to 2021 amounts.

[2] Costs are provided, where available, for all activities regardless of whether a RSE analysis was performed.

## 2021 RAMP

### SDG&E-Risk-2-WP

#### Risks Shared Allocations Workpaper

##### Tab: Shared Allocations

(2020 Direct \$000)

RAMP Chapter ID	RAMP Chapter Name	Control / Mitigation ID	Control / Mitigation Name	O&M Shared Allocations			
				Retained	SoCalGas	Sempra Energy	Other
SDG&E-Risk-2	Electric Infrastructure Integrity	C1	Overhead Public Safety (OPS) Program	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C2	GO165 Pole Replacement Reinforcement	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C3	4kV Modernization Program – Distribution	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C4:T1	Distribution Overhead Switch Replacement Program - SCADA	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C4:T2	Distribution Overhead Switch Replacement Program - Gang	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C4:T3	Distribution Overhead Switch Replacement Program - Hook	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C5	Management of Overhead Distribution Service (Non-CMP)	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C6	Vegetation Management (non-HFTD)	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C7	Restoration of Service	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C8	Aviation Protection Program	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C9	Underground Cable Replacement Program – Reactive	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C10:T1	Underground Cable Replacement Program – Proactive – UG Feeder	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C10:T2	Underground Cable Replacement Program – Proactive – UG Branch	100%	0%	0%	0%
			Underground Cable Replacement Program – Proactive – North Harbor Project	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C11	Tee Modernization Program	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C12	Replacement of Live Front Equipment - Reactive	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C13	Replacement of Live Front Equipment - Proactive	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C14	DOE Switch Replacement – Underground	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C15	GO165 Corrective Maintenance Program – Underground	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C16	GO 165 Manhole, Vault Restoration Program	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C17	Management of Underground Distribution Service (Non-CMP)	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C18	Distribution Circuit Reliability	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C19	Minor Distribution Substation Reliability Projects	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T1	Substation Reliability for Distribution Components – Batiquitos 12kV Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T2	Substation Reliability for Distribution Components – Bernardo 12kV Breakers Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T3	Substation Reliability for Distribution Components – Chicarita 12kV Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T4	Substation Reliability for Distribution Components – Laguna Niguel 12kV Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T5	Substation Reliability for Distribution Components – Miramar 12kV Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T6	Substation Reliability for Distribution Components – Scripps 12kV Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T7	Substation Reliability for Distribution Components – Pacific Beach Bus Tie Replacements	100%	0%	0%	0%

RAMP Chapter ID	RAMP Chapter Name	Control / Mitigation ID	Control / Mitigation Name	O&M Shared Allocations			
				Retained	SoCalGas	Sempra Energy	Other
SDG&E-Risk-2	Electric Infrastructure Integrity	C20:T8	Substation Reliability for Distribution Components – Coronado 69/12kV Transformer Replacements	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C21	Distribution Substation Obsolete Equipment	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C22	Emergency Transformer and Switchgear	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C23	San Mateo Substation Rebuild	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C24	Urban Substation Rebuild	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C25	Substation Inspection GO-174	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C26	Power Quality Monitor Deployment and Replacement	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C27	Distribution Substation SCADA Expansion	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C28	Field SCADA RTU Replacement	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	C29	SCADA Capacitors	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	M1	Non-HFTD Wireless Fault Indicator OH	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	M2	UG Fault Detection	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	A1	Customer Owned E-Structure Reconfigure	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	A2:T1	Modernize Manual Switches - OH	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	A2:T2	Modernize Manual Switches - UG	100%	0%	0%	0%
SDG&E-Risk-2	Electric Infrastructure Integrity	A3	Avian Protection Program	100%	0%	0%	0%

## 2021 RAMP

## SDG&amp;E-Risk-2-WP

## Risks Recorded and Forecast Costs After Allocations Workpaper

Tab: After Allocations\$

(2020 Direct \$000)

RAMP Chapter ID	RAMP Chapter Name	Control / Mitigation ID	Control / Mitigation Name	RECORDED DOLLARS										FORECAST DOLLARS																
				O&M					Capital					O&M					Capital											
				2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2022	2023	2024	2022	2023	2024	2022	2023	2024								
				\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$ Low	\$ High	\$ Low	\$ High	\$ Low	\$ High	\$ Low	\$ High	\$ Low	\$ High							
SDG&E-Risk-2	Electric Infrastructure Integrity	C1	Overhead Public Safety (OPS) Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 53	\$ -	\$ 5	\$ -	\$ 6,470	\$ 7,993	\$ 6,000	\$ 7,412	\$ 6,000	\$ 7,412							
SDG&E-Risk-2	Electric Infrastructure Integrity	C2	G0165 Pole Replacement Reinforcement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,222	\$ 8,922	\$ 7,367	\$ 9,100	\$ 7,514	\$ 9,282	Costs captured in Electric Distribution - Capital (GRC)									
SDG&E-Risk-2	Electric Infrastructure Integrity	C3	34V Modernization Program - Distribution	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 395	\$ 4,000	\$ 500	\$ 4,000	\$ 3,626	\$ 4,000	Costs captured in Electric Distribution - Capital (GRC)									
SDG&E-Risk-2	Electric Infrastructure Integrity	C4/T1	Distribution Overhead Switch Replacement Program - SCADA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15	\$ 10	\$ 24	\$ 154	\$ -	\$ -	\$ 141	\$ 177	\$ 191	\$ 236	\$ 191	\$ 236				
SDG&E-Risk-2	Electric Infrastructure Integrity	C4/T2	Distribution Overhead Switch Replacement Program - Gasar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 5	\$ 12	\$ 77	\$ -	\$ -	\$ 1	\$ 102	\$ 128	\$ 158	\$ 128	\$ 158				
SDG&E-Risk-2	Electric Infrastructure Integrity	C4/T3	Distribution Overhead Switch Replacement Program - Hook	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5	\$ 38	\$ 89	\$ 579	\$ -	\$ -	\$ 5	\$ 102	\$ 128	\$ 158	\$ 128	\$ 158				
SDG&E-Risk-2	Electric Infrastructure Integrity	C5	Management of Overhead Distribution Service (Non-CMP)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,138	\$ 1,805	\$ 7,057	\$ 6,880	\$ 8,663	\$ 10,000	\$ 9,265	\$ 7,709	\$ 9,265	\$ 7,709	\$ 9,265	\$ 7,709				
SDG&E-Risk-2	Electric Infrastructure Integrity	C6	Management of Overhead Distribution Service (Non-CMP) - HHTD	\$ 9,807	\$ 9,738	\$ 11,599	\$ 13,739	\$ 31,900	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 31,805	\$ 39,269	\$ 34,397	\$ 42,491	\$ 37,201	\$ 45,954	\$ 37,201	\$ 45,954	\$ 37,201	\$ 45,954	\$ 37,201	\$ 45,954				
SDG&E-Risk-2	Electric Infrastructure Integrity	C7	Restoration of Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,919	\$ 7,474	\$ 9,666	\$ 9,701	\$ 7,401	\$ -	\$ 5	\$ 34	\$ 55	\$ 5	\$ 11,078	\$ 13,684	\$ 9,500	\$ 11,735		
SDG&E-Risk-2	Electric Infrastructure Integrity	C8	Restoration Protection Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 116	\$ 180	\$ 0	\$ 0	\$ 209	\$ -	\$ 5	\$ -	\$ 5	\$ 500	\$ 643	\$ 580	\$ 655	\$ 541	\$ 669	
SDG&E-Risk-2	Electric Infrastructure Integrity	C9	Underground Cable Replacement Program - Reactive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,827	\$ 3,815	\$ 3,144	\$ 5,286	\$ 5,407	\$ -	\$ 5	\$ -	\$ 5	\$ 5790	\$ 7,103	\$ 5,790	\$ 7,103	\$ 5,790	\$ 7,103	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10/T1	Feeder	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 437	\$ 286	\$ 236	\$ 49	\$ 213	\$ -	\$ 5	\$ -	\$ 5	\$ 150	\$ 185	\$ 150	\$ 185	\$ 150	\$ 185	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10/T2	Underground Cable Replacement Program - Proactive - UG	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,303	\$ 5,437	\$ 4,478	\$ 940	\$ 4,047	\$ -	\$ 5	\$ -	\$ 5	\$ 4,755	\$ 5,874	\$ 4,225	\$ 5,220	\$ 4,225	\$ 5,220	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10/T3	Harbor Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5	\$ -	\$ 5	\$ -	\$ 6,455	\$ 7,979	\$ 6,219	\$ 7,683	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C11	Tee Modernization Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,519	\$ 2,396	\$ 602	\$ 1,750	\$ -	\$ 5	\$ -	\$ 5	\$ 3,236	\$ 4,014	\$ 2,250	\$ 4,014	\$ 2,250	\$ 4,014		
SDG&E-Risk-2	Electric Infrastructure Integrity	C12	Replacement of Line Front Equipment - Reactive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 599	\$ 599	\$ 492	\$ 492	\$ 492	\$ -	\$ 5	\$ -	\$ 5	\$ 599	\$ 599	\$ 492	\$ 492	\$ 492	\$ 492	
SDG&E-Risk-2	Electric Infrastructure Integrity	C13	Replacement of Line Front Equipment - Proactive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5	\$ -	\$ 5	\$ -	\$ 442	\$ 5	\$ -	\$ 5	\$ 500	\$ 617	\$ 499	\$ 611	\$ 491	\$ 611		
SDG&E-Risk-2	Electric Infrastructure Integrity	C14	PDU Switch Replacement - Underground	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,467	\$ 1,381	\$ 2,311	\$ 5,930	\$ 5,731	\$ -	\$ 5	\$ -	\$ 5	\$ 4,266	\$ 5,270	\$ 6,125	\$ 7,566	\$ 6,125	\$ 7,566	
SDG&E-Risk-2	Electric Infrastructure Integrity	C15	G0165 Corrective Maintenance Program - Underground	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,691	\$ 2,732	\$ 10,379	\$ 12,018	\$ 13,365	\$ -	\$ 5	\$ -	\$ 5	\$ 11,119	\$ 13,795	\$ 13,276	\$ 16,729	\$ 13,276	\$ 16,729	
SDG&E-Risk-2	Electric Infrastructure Integrity	C16	G0165 Maintenance Vault Replacement Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400	\$ -	\$ 5	\$ -	\$ 5	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400	
SDG&E-Risk-2	Electric Infrastructure Integrity	C17	G0165 Maintenance Vault Replacement Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,715	\$ 1,384	\$ 3,241	\$ 3,279	\$ 3,750	\$ -	\$ 5	\$ -	\$ 5	\$ 3,119	\$ 3,878	\$ 3,250	\$ 4,015	\$ 3,250	\$ 4,015	
SDG&E-Risk-2	Electric Infrastructure Integrity	C18	Distribution Circuit Reliability for Distribution Services (Non-CMP)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5	\$ 4,000	\$ 730	\$ 2,773	\$ 412	\$ 4,337	\$ -	\$ 5	\$ -	\$ 5	\$ 2,673	\$ 3,700	\$ 3,637	\$ 4,493	\$ 3,637	\$ 4,493
SDG&E-Risk-2	Electric Infrastructure Integrity	C19	Minor Distribution Substation Reliability Projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,318	\$ 3,050	\$ 2,056	\$ 1,734	\$ 1,218	\$ -	\$ 5	\$ -	\$ 5	\$ 1,301	\$ 1,301	\$ 1,305	\$ 1,855	\$ 1,305	\$ 1,855	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T1	12KV Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,666	\$ 3,294	\$ 3,660	\$ 4,531	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T2	12KV Breakers Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 846	\$ 1,045	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T3	Substation Reliability for Distribution Components - Chiricita	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,743	\$ 2,153	\$ 1,845	\$ 2,279	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T4	Natural 12KV Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,899	\$ 8,522	\$ 4,986	\$ 615	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T5	12KV Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,098	\$ 1,356	\$ 14	\$ 18	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T6	Substation Reliability for Distribution Components - Scripps	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,668	\$ 9,472	\$ 2,808	\$ 3,468	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T7	Bus Tie Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,950	\$ 2,409	\$ -	\$ -	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C20/T8	Substitution Reliability for Distribution Components - Coronado	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 894	\$ 1,104	\$ 508	\$ 627	\$ -	\$ -	Costs captured in Electric Distribution - Capital (GRC)					
SDG&E-Risk-2	Electric Infrastructure Integrity	C21	Distribution Substation Obsolete Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,619	\$ 5,896	\$ 2,683	\$ 2,683	\$ 2,425	\$ -	\$ 5	\$ -	\$ 5	\$ 2,271	\$ 2,748	\$ 2,425	\$ 2,748	\$ 2,425	\$ 2,748
SDG&E-Risk-2	Electric Infrastructure Integrity	C22	San Mateo Substation Reliability	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,705	\$ 2,705	\$ 2,705	\$ 2,705	\$ 2,705	\$ -	\$ 5	\$ -	\$ 5	\$ 500	\$ 500	\$ 329	\$ 329	\$ 329	\$ 329
SDG&E-Risk-2	Electric Infrastructure Integrity	C23	Urban Substation Reliability	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 5	\$ 6	\$ 6	\$ 5	\$ -	\$ 5	\$ -	\$ 5	\$ 1,244	\$ 1,536	\$ 4,832	\$ 5,376	\$ 6,217	\$ 7,680
SDG&E-Risk-2	Electric Infrastructure Integrity	C24	Urban Substation Reliability	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 5	\$ 6	\$ 6	\$ 5	\$ -	\$ 5	\$ -	\$ 5	\$ 233	\$ 313	\$ 4,796	\$ 3,677	\$ 269	\$ 332	
SDG&E-Risk-2	Electric Infrastructure Integrity	C25	Substation Inspection GD-176	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 692	\$ 474	\$ 686	\$ 1,054	\$ 1,580	\$ -	\$ 5	\$ 1,887	\$ 1,714	\$ 1,442	\$ 1,784	\$ 1,500	\$ 1,853	\$ 1,500	\$ 1,853	
SDG&E-Risk-2	Electric Infrastructure Integrity	C26	Substation Inspection and Replacement and Relacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 133	\$ 766	\$ 167	\$ 1	\$ 226	\$ -	\$ 5	\$ -	\$ 5	\$ 444	\$ 549	\$ 444	\$ 549	\$ 444	\$ 549
SDG&E-Risk-2	Electric Infrastructure Integrity	C27	Distribution Substation SCADA Expansion	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 234	\$ 766	\$ 167	\$ 1	\$ 226	\$ -	\$ 5	\$ -	\$ 5	\$ 1,612	\$ 1,993	\$ 1,607	\$ 1,995	\$ 1,607	\$ 1,995
SDG&E-Risk-2	Electric Infrastructure Integrity	C28	Field SCADA RTU Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 2,072	\$ 2,142	\$ 129	\$ 1,729	\$ -	\$ 5	\$ -	\$ 5	\$ 760	\$ 926	\$ 587	\$ 726	\$ 587	\$ 726	
SDG&E-Risk-2	Electric Infrastructure Integrity	A1	SCADA RTU Meters	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	\$ 290	\$ 373	\$ 180	\$ 180	\$ 180	\$ -	\$ 5	\$ -	\$ 5	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500
SDG&E-Risk-2	Electric Infrastructure Integrity	M1	SCADA RTU Meters Fault Indicator OH	\$ -	\$ -	\$ -	\$ -</td																							

RAMP Chapter ID	RAMP Chapter Name	Control / Mitigation ID	Control / Mitigation Name	RECORDED UNITS										FORECAST UNITS										Notes			
				Units Description					Capital					Units Description					Capital								
				2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2022	2023	2024	2022	2023	2024	Low	High	Low	High	Low	High		
SDG&E-Risk-2	Electric Infrastructure Integrity	C1	Underground Distribution System - Reliability	Reconductor miles	N/A	-	-	-	-	-	-	-	-	0	-	-	-	-	-	11	11	11	11	11	11	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C2	SDG&E Pole Replacement Reinforcement	Poles	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450	555	450	555	450	555	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C3	Alley Modernization Program - Distribution	Reconductor miles	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	8	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C4	SDG&E Distribution Overhead Switch Replacement Program - ACDA	OH pole circuits	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C4T2	Distribution Overhead Switch Replacement Program - Gang OH gang switch	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	5	4	5	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C4T3	Distribution Overhead Switch Replacement Program - Individual OH hookstick	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	19	22	27	22	27	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C5	Management of Overhead Distribution Services (Non-CMP)	OH Distribution Equipment	N/A	-	-	-	-	146	473	922	649	768	-	-	-	-	-	555	686	555	686	555	686	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C6	Management of Overhead Distribution Services (Non-CMP)	OH Distribution Equipment	N/A	-	-	-	-	123,042	-	-	-	-	115,306	142,437	120,901	149,348	127,124	157,036	-	-	-	-	-	-	Costs captured in Electric Distribution - Capital (GRIC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C7	Restoration of Service	Distribution Equipment	N/A	-	-	-	-	-	36	3,463	3,164	2,856	2,814	-	-	-	-	-	2,251	2,783	2,251	2,783	2,251	2,783	Costs captured in Electric Distribution - Capital (GRIC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C8	Aviation Protection Program	None	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	102	102	102	102	102	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C9	Underground Cable Replacement Program - Reactive	Cable circuit miles	N/A	-	-	-	-	-	122	654	208	243	-	-	-	-	-	32	40	32	40	32	40	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10T1	Underground Cable Replacement Program - Proactive - LGD Feeder	Feeder cable circuit miles	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10T2	Underground Cable Replacement Program - Proactive - LGD Branches	Branch cable circuit miles	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	75	20	20	20	20	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C10T3	Underground Cable Replacement Program - Proactive - North	FE sets	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,273	35,343	19,273	35,343	19,273	35,343	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C11	Fuse Modernization Program	None	N/A	-	-	-	-	-	-	-	-	-	7	86	18	75	-	128	158	128	158	128	158	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C12	Replacement of Lug Front Equipment - Reactive	Lug Front Terminators	N/A	-	-	-	-	-	-	-	-	-	5	2	3	1	-	10	13	10	13	10	13	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C13	Substation Reliability - Underground	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	18	18	18	18	18	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C14	SDG&E Corrective Maintenance Program - Underground	No Feasible Units	N/A	-	-	-	-	-	27	21	38	34	26	-	-	-	-	20	25	30	37	30	37	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C15	SDG&E Corrective Maintenance Program - Undersea	No Feasible Units	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,816	2,243	1,816	2,243	1,816	2,243	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C16	Management of Undersea Distribution Services (Nope Chops)	Underground Equipment	N/A	-	-	-	-	-	94	461	791	504	472	-	-	-	-	-	1	1	1	1	1	1	Costs captured in Electric Distribution - Capital (GRIC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C18	Underground Cervix Reliability	Switch	N/A	-	-	-	-	-	25	16	19	14	22	-	-	-	-	-	15	19	21	26	21	26	Costs captured in Electric Distribution - Capital (GRIC)
SDG&E-Risk-2	Electric Infrastructure Integrity	C19	Substation Reliability for Distribution Components - Reliability	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	2	3	2	3	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T1	Substation Reliability for Distribution Components - Reliability	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	20	10	13	13	16	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T2	Substation Reliability for Distribution Components - Bernardo 12KV	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	16	-	-	-	-	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T3	Substation Reliability for Distribution Components - Chiricua 12KV	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	14	8	9	8	9	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T4	Substation Reliability for Distribution Components - La Jagna Nogales	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	22	15	14	18	22	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T5	Substation Reliability for Distribution Components - Miramar 12KV	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	17	-	-	-	-	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T6	Substation Reliability for Distribution Components - Scripts 12KV	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	18	9	12	-	-	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T7	Substation Reliability for Distribution Components - Bus Tag Replacements	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	-	-	-	-	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C20T8	Substation Reliability for Distribution Components - Coronado	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C21	Distribution Substation Obsolete Equipment	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C22	Emergency Transformer and Switchgear	Transformer and switchgear	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C23	Emergency Transformer and Switchgear	Transformer and switchgear	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C24	Urban Substation Rebuild	Substation Equipment	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	3	1	3	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C25	Substation Inspection GO 174	N/A	Inspection & repairs	-	-	-	-	-	-	-	-	-	1,458	1,801	1,458	1,801	1,458	1,801	1,458	1,801	1,458	1,801	Costs captured in Electric Distribution - O&M (GRIC)		
SDG&E-Risk-2	Electric Infrastructure Integrity	C26	SDG&E Distribution Substation SCADA Equipment and Replacement	Relays	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	43	0	43	0	43	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	C27	SDG&E Distribution Substation SCADA Equipment and Replacement	Relays	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	5	3	4	Costs captured in Electric Distribution - Capital (GRIC)		
SDG&E-Risk-2	Electric Infrastructure Integrity	C28	Fault Indicator RTU Replacement	RTUs	N/A	-	-	-	-	-	28	4	27	25	-	-	-	-	-	27	34	21	26	21	26	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	M1	Network Wireless Fault Indicator OH	Wireless Fault Installed	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,360	1,680	1,360	1,680	1,360	1,680	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	M2	OH Fault Detection	Fault Indicator	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	3	4	3	4	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A1	Automated Power Line Structure Configuration	Structures	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A2T1	Modular Manual Switches - OH	Switches	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	105	85	105	85	105	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A2T2	Modular Manual Switches - LG	Switches	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	59	48	59	48	59	Costs captured in Electric Distribution - Capital (GRIC)	
SDG&E-Risk-2	Electric Infrastructure Integrity	A3	Bayan Protection Program	Poles	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,821	3,485	2,821	3,485	2,821	3,485	Costs captured in Electric Distribution - Capital (GRIC)	