



Order Instituting Investigation into the November) Investigation 19-11-011
2019 Submission of San Diego Gas & Electric)
Company's Risk Assessment and Mitigation Phase.)

RISK ASSESSMENT MITGATION PHASE

**WORKPAPERS TO
CHAPTER SDG&E-10
CYBERSECURITY**

November 27, 2019

12	Length of blackout, hours	Based on the 2011 SW blackout the duration was 12 hrs, this is a minimum as EMS was available. In a cyber event, there is a need to clean up and restore EMS or perform the restoration manually, which would be a minimum of 12 hours
100%	Blackout impact, customer base	
720	SAIDI minutes	
0.25	SAIDI weight	
180	SAIDI contribution, minutes	
100	SAIDI normalization factor, minutes	
1	SAIFI impact	
0.25	SAIFI weight	
0.25	SAIFI contribution	
1	SAIFI normalization factor	
1,400,000	Customers	
2.66	People per household, San Diego county	
80	Median longevity, years	
46550	Mortality per year	
128	Mortality per day	
5	Natural mortality per hour	
0.3%	Mortality acceleration due to blackout	
0.2	Blackout fatalities	
30	Safety normalization factor	
3.2	Economic damage per hour per person	
143,683,744	Blackout economic damage	
1,000,000,000	Financial normalization factor	
0.02	Probability of cyber intrusion leading to blackout	Basis: Lloyd used 1:200 years as an upper bound for their catastrophic scenario in 2015, however this risk is assumed to increase at 27%/yr therefore 2% will be used.
0.6	Safety weight	
0.2	Reliability weight	
0.2	Financial weight	
0.000081928	Blackout safety risk score	
0.00057	Blackout financial risk score	
0.00820	Blackout reliability risk score	
0.00886	Total cyber risk score - electric	
100%	Probability of significant overpressure event given cyber intrusion	
0.06	Potential fatalities	
1.5	Potential injuries	
43,630,214	Potential property damage from explosion/fire	
0.00017235	Gas safety risk score	
0.00017452	Gas financial risk score	
0.0003	Total cyber risk score - gas distribution	
0.0092	Total cyber risk score - electric and gas	

Chapter	SCG-9/SDG&E-10
Risk	Cybersecurity

Single Point

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	Single Point				Single Point	
				LORE	CORE	LORE	CORE					
C1	Perimeter Defense	5	1.48	6.75	0.00	0.00	0.02	46017.68	0.35	130.75	0.03	46017.68
C2	Internal Defense	5	2.02	29.61	7.88	3.00	0.02	46017.68	0.28	25.12	0.03	46017.68
C3	Sensitive Data Protection	5	1.13	3.75	2.63	0.00	0.02	46017.68	0.14	59.61	0.02	46017.68
C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	16.50	0.02	46017.68	0.42	52.92	0.03	46017.68
C5	Obsolete IT Infrastructure Modernization	5	1.54	5.25	3.00	0.00	0.02	46017.68	0.21	67.74	0.02	46017.68

Low Alternative

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	Low Alternative				Low Alternative	
				LORE	CORE	LORE	CORE					
C1	Perimeter Defense	5	1.48	6.75	0.00	0.00	0.02	44873.42	35.10%	127.50	0.03	44873.42
C2	Internal Defense	5	2.02	29.61	7.88	3.00	0.02	44873.42	28.08%	24.49	0.03	44873.42
C3	Sensitive Data Protection	5	1.13	3.75	2.63	0.00	0.02	44873.42	14.04%	58.13	0.02	44873.42
C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	16.50	0.02	44873.42	42.12%	51.60	0.03	44873.42
C5	Obsolete IT Infrastructure Modernization	5	1.54	5.25	3.00	0.00	0.02	44873.42	21.06%	66.06	0.02	44873.42

High Alternative

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	High Alternative				High Alternative	
				LORE	CORE	LORE	CORE					
C1	Perimeter Defense	5	1.48	6.75	0.00	0.00	0.02	47924.79	35.10%	136.17	0.03	47924.79
C2	Internal Defense	5	2.02	29.61	7.88	3.00	0.02	47924.79	28.08%	26.16	0.03	47924.79
C3	Sensitive Data Protection	5	1.13	3.75	2.63	0.00	0.02	47924.79	14.04%	62.08	0.02	47924.79
C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	16.50	0.02	47924.79	42.12%	55.11	0.03	47924.79
C5	Obsolete IT Infrastructure Modernization	5	1.54	5.25	3.00	0.00	0.02	47924.79	21.06%	70.55	0.02	47924.79

Single Point

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	Single Point				Single Point	
				LORE	CORE	LORE	CORE					
A1-C1	Perimeter Defense	5	1.48	4.88	0.00	0.00	0.02	46017.68	0.28	125.37	0.03	46017.68
A1-C2	Internal Defense	5	2.02	23.16	6.00	1.50	0.02	46017.68	0.14	15.93	0.02	46017.68
A1-C3	Sensitive Data Protection	5	1.13	1.88	2.63	0.00	0.02	46017.68	0.07	36.74	0.02	46017.68
A1-C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	12.75	0.02	46017.68	0.38	54.03	0.03	46017.68
A1-C5	Obsolete IT Infrastructure Modernization	5	1.54	4.13	3.00	0.00	0.02	46017.68	0.19	66.69	0.02	46017.68

Low Alternative

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	Low Alternative				Low Alternative	
				LORE	CORE	LORE	CORE					
A1-C1	Perimeter Defense	5	1.48	4.88	0.00	0.00	0.02	44873.42	28.08%	122.26	0.03	44873.42
A1-C2	Internal Defense	5	2.02	23.16	6.00	1.50	0.02	44873.42	14.04%	15.53	0.02	44873.42
A1-C3	Sensitive Data Protection	5	1.13	1.88	2.63	0.00	0.02	44873.42	7.02%	35.83	0.02	44873.42
A1-C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	12.75	0.02	44873.42	37.91%	52.69	0.03	44873.42
A1-C5	Obsolete IT Infrastructure Modernization	5	1.54	4.13	3.00	0.00	0.02	44873.42	18.95%	65.03	0.02	44873.42

High Alternative

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	High Alternative				High Alternative	
				LORE	CORE	LORE	CORE					
A1-C1	Perimeter Defense	5	1.48	4.88	0.00	0.00	0.02	47924.79	28.08%	130.57	0.03	47924.79
A1-C2	Internal Defense	5	2.02	23.16	6.00	1.50	0.02	47924.79	14.04%	16.59	0.02	47924.79
A1-C3	Sensitive Data Protection	5	1.13	1.88	2.63	0.00	0.02	47924.79	7.02%	38.26	0.02	47924.79
A1-C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	12.75	0.02	47924.79	37.91%	56.27	0.03	47924.79
A1-C5	Obsolete IT Infrastructure Modernization	5	1.54	4.13	3.00	0.00	0.02	47924.79	18.95%	69.46	0.02	47924.79

Chapter	SCG-9/SDG&E-10
Risk	Cybersecurity

Single Point

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	Single Point				Single Point	
				LORE	CORE	LORE	CORE	LORE			CORE	
A2-C1	Perimeter Defense	5	1.48	6.75	0.00	0.00	0.02	46017.68	0.39	126.55	0.03	46017.68
A2-C2	Internal Defense	5	2.02	29.61	7.88	3.00	0.02	46017.68	0.31	24.94	0.03	46017.68
A2-C3	Sensitive Data Protection	5	1.13	3.75	2.63	0.00	0.02	46017.68	0.14	59.61	0.02	46017.68
A2-C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	16.50	0.02	46017.68	0.42	52.92	0.03	46017.68
A2-C5	Obsolete IT Infrastructure Modernization	5	1.54	5.25	3.00	0.00	0.02	46017.68	0.21	67.74	0.02	46017.68

Low Alternative

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	Low Alternative				Low Alternative	
				LORE	CORE	LORE	CORE	LORE			CORE	
A2-C1	Perimeter Defense	5	1.48	6.75	1.50	0.00	0.02	44873.42	38.61%	123.40	0.03	44873.42
A2-C2	Internal Defense	5	2.02	29.61	10.50	5.25	0.02	44873.42	30.89%	24.32	0.03	44873.42
A2-C3	Sensitive Data Protection	5	1.13	3.75	2.63	0.00	0.02	44873.42	14.04%	58.13	0.02	44873.42
A2-C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	16.50	0.02	44873.42	42.12%	51.60	0.03	44873.42
A2-C5	Obsolete IT Infrastructure Modernization	5	1.54	5.25	3.00	0.00	0.02	44873.42	21.06%	66.06	0.02	44873.42

High Alternative

ID	Activity	Project Life In Years	Cost Forecast (O&M, \$M) 2022	Cost Forecast (Capital, \$M)			Pre-Mitigation		% risk reduction (use if % risk addressed not available) (%)	RSE	Post-Mitigation	
				2020	2021	2022	High Alternative				High Alternative	
				LORE	CORE	LORE	CORE	LORE			CORE	
A2-C1	Perimeter Defense	5	1.48	6.75	1.50	0.00	0.02	47924.79	38.61%	131.80	0.03	47924.79
A2-C2	Internal Defense	5	2.02	29.61	10.50	5.25	0.02	47924.79	30.89%	25.97	0.03	47924.79
A2-C3	Sensitive Data Protection	5	1.13	3.75	2.63	0.00	0.02	47924.79	14.04%	62.08	0.02	47924.79
A2-C4	Operational Technology (OT) Cybersecurity	5	1.46	1.50	9.75	16.50	0.02	47924.79	42.12%	55.11	0.03	47924.79
A2-C5	Obsolete IT Infrastructure Modernization	5	1.54	5.25	3.00	0.00	0.02	47924.79	21.06%	70.55	0.02	47924.79

SDG&E-10-C1: Perimeter Defenses

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	35.1%	<i>Contribution to overall benefits (25%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The contribution to overall benefits (weight) stems from SME expertise	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	35.1%	<i>Contribution to overall benefits (25%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	35.1%	<i>Contribution to overall benefits (25%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-C2: Internal Defenses

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	28.1%	<i>Contribution to overall benefits (20%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The contribution to overall benefits (weight) stems from SME expertise	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	28.1%	<i>Contribution to overall benefits (20%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	28.1%	<i>Contribution to overall benefits (20%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-C3: Sensitive Data Protection

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	14%	<i>Contribution to overall benefits (10%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The contribution to overall benefits (weight) stems from SME expertise	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	14%	<i>Contribution to overall benefits (10%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	14%	<i>Contribution to overall benefits (10%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-C4: Operational Technologies (OT) Cybersecurity

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	42.1%	<i>Contribution to overall benefits (30%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The contribution to overall benefits (weight) stems from SME expertise	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	42.1%	<i>Contribution to overall benefits (30%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	42.1%	<i>Contribution to overall benefits (30%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-C5: Obsolete Information Technology (IT) Infrastructure and Application Replacement

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	21.1%	<i>Contribution to overall benefits (15%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The contribution to overall benefits (weight) stems from SME expertise	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	21.1%	<i>Contribution to overall benefits (15%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	21.1%	<i>Contribution to overall benefits (15%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A1-1: Perimeter Defenses

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	28.1%	<i>Contribution to overall benefits (25%) x Risk Reduction (21.6%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	28.1%	<i>Contribution to overall benefits (25%) x Risk Reduction (21.6%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	28.1%	<i>Contribution to overall benefits (25%) x Risk Reduction (21.6%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A1-2: Internal Defenses

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	14%	<i>Contribution to overall benefits (20%) x Risk Reduction (13.5%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	14%	<i>Contribution to overall benefits (20%) x Risk Reduction (13.5%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	14%	<i>Contribution to overall benefits (20%) x Risk Reduction (13.5%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A1-3: Sensitive Data Protection

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	7%	<i>Contribution to overall benefits (10%) x Risk Reduction (13.5%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	7%	<i>Contribution to overall benefits (10%) x Risk Reduction (13.5%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	7%	<i>Contribution to overall benefits (10%) x Risk Reduction (13.5%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A1-4: Operational Technologies (OT) Cybersecurity

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	37.9%	<i>Contribution to overall benefits (30%) x Risk Reduction (24.3%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	37.9%	<i>Contribution to overall benefits (30%) x Risk Reduction (24.3%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	37.9%	<i>Contribution to overall benefits (30%) x Risk Reduction (24.3%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A1-5: Obsolete Information Technology (IT) Infrastructure and Application Replacement

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	19%	<i>Contribution to overall benefits (15%) x Risk Reduction (24.3%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	19%	<i>Contribution to overall benefits (15%) x Risk Reduction (24.3%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	19%	<i>Contribution to overall benefits (15%) x Risk Reduction (24.3%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A2-1: Perimeter Defenses

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	38.6%	<i>Contribution to overall benefits (25%) x Risk Reduction (29.7%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	38.6%	<i>Contribution to overall benefits (25%) x Risk Reduction (29.7%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	38.6%	<i>Contribution to overall benefits (25%) x Risk Reduction (29.7%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A2-2: Internal Defenses

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	30.9%	<i>Contribution to overall benefits (20%) x Risk Reduction (29.7%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	30.9%	<i>Contribution to overall benefits (20%) x Risk Reduction (29.7%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	30.9%	<i>Contribution to overall benefits (20%) x Risk Reduction (29.7%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A2-3: Sensitive Data Protection

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	14%	<i>Contribution to overall benefits (10%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	14%	<i>Contribution to overall benefits (10%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	14%	<i>Contribution to overall benefits (10%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

SDG&E-10-A2-4: Operational Technologies (OT) Cybersecurity

Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	42.1%	<i>Contribution to overall benefits (30%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	42.1%	<i>Contribution to overall benefits (30%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	42.1%	<i>Contribution to overall benefits (30%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					

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Attribute	Risk Reduction	Formula	Basis			Reference	Project Life
	Total		Scope	Effectiveness	Risk Addressed		
Safety	21.1%	<i>Contribution to overall benefits (15%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>	The risk reduction stems from SME expertise off a baseline of the annual rate of 27%	ACN report indicates a rapidly evolving risk increasing at an annual rate of 27%	The risk increases at a compounding rate of 27% leading to a 330% increase in 5 years, making the average annual increase 5.2x more than 27%, or 141%	"Accenture Report the Cost of Cyber Crime" - Richards, Kevin	5
Reliability	21.1%	<i>Contribution to overall benefits (15%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					
Financial	21.1%	<i>Contribution to overall benefits (15%) x Risk Reduction (27%) x Multiplier to account for increase in cyber risk over 5 years (5.2)</i>					