

**2016 Risk Assessment Mitigation Phase
Investigation 16-10-015
Workpapers to
Unmanned Aircraft System (UAS)
Incident
(Chapter SDG&E-11-WP)**

January 2017



2016 Risk Assessment Mitigation Phase
SDGE-11-WP
Risk: Unmanned Aircraft System (UAS) Incident (O&M)

Line No.	Mitigation	Project/Program	Project/Program Description	Status	Recorded (Directs, 2015 \$000)					Forecast Range (Directs, 2015 \$000)						Forecast Methodology
					2011	2012	2013	2014	2015	2017 Low	2017 High	2018 Low	2018 High	2019 Low	2019 High	
1	UAS Weight Limitations	UAS Weight Limitations	SDG&E restricted the acquisition of any UAS with a weight in excess of 55 pounds to lessen the severity of an aircraft accident	B	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
2	UAS Weight Limitations Subtotal				-	-	-	-	-	-	-	-	-	-	-	
3	Pilot in Command Experience and Training Requirements	Pilot in Command Experience and Training Requirements	Federal Aviation Administration regulations required licensed recreational pilots to operate a commercial UAS	B	-	-	-	-	-	-	-	-	-	-	-	
4	Pilot in Command Experience and Training Requirements Subtotal				-	-	-	-	-	-	-	-	-	-	-	
5	UAS Software and Hardware Checked Prior to Flight	UAS Software and Hardware Checked Prior to Flight	SDG&E systematically checked UAS software and hardware for latest upgrades as a best practice	B	-	-	-	-	-	-	-	-	-	-	-	
6	UAS Software and Hardware Checked Prior to Flight Subtotal				-	-	-	-	-	-	-	-	-	-	-	
7	Flights Not Conducted Near Aircraft or People or Within Five Miles of an Airport Without Air Traffic Control Permission	Flights Not Conducted Near Aircraft or People or Within Five Miles of an Airport Without Air Traffic Control Permission	SDG&E UAS maintained distance from the general public and private property, and suspended flight operations as safety measures	B	-	-	-	-	-	-	-	-	-	-	-	
8	Flights Not Conducted Near Aircraft or People or Within Five Miles of an Airport Without Air Traffic Control Permission Subtotal				-	-	-	-	-	-	-	-	-	-	-	
9	Complied with State and Federal UAS Regulations	Complied with State and Federal UAS Regulations	SDG&E monitored state and federal rules and regulations concerning UAS	B	-	-	-	-	-	-	-	-	-	-	-	
10	Complied with State and Federal UAS Regulations Subtotal				-	-	-	-	-	-	-	-	-	-	-	
11	UAS Safety Management System (SMS)	UAS SMS	A systematic approach to managing safety to better capture, analyze, and understand performance information and flight data, leading to programmatic changes that prevent failures	P						34	49	34	49	34	49	Zero-Based
12		UAS Privacy Policy	A policy to be created in compliance with industry best practices. The development of this policy will drive changes to the Aviation Operations Manual and Training Documentation	P						20	29	20	29	20	29	Zero-Based
13	UAS SMS Subtotal				-	-	-	-	-	54	77	54	77	54	77	
14	UAS Training Program for SDG&E Employees	UAS Training Program for SDG&E Employees	Policy and procedure foundation for SDG&E employees upon which all operations would be based	P						16	23	16	23	16	23	Zero-Based
15	UAS Training Program for SDG&E Employees Subtotal				-	-	-	-	-	16	23	16	23	16	23	
16	Contractor Qualification, Oversight and Audit Program	Contractor Qualification, Oversight and Audit Program	A third-party assessment of SDG&E's operational processes allowing external input into an otherwise internal workflow	P						23	34	23	34	23	34	Zero-Based
17	Contractor Qualification, Oversight and Audit Program Subtotal				-	-	-	-	-	23	34	23	34	23	34	
18	Flight Management Controls	Flight Management Controls	Fleet management software to monitor, track, and maintain aircraft data	P						9	13	9	13	9	13	Zero-Based
19	Flight Management Controls Subtotal				-	-	-	-	-	9	13	9	13	9	13	
20	Research Best Use Cases for Specific Systems as Technology Advances	Research Best Use Cases for Specific Systems as Technology Advances	The utilization of outside vendors and consultants to incorporate the latest opportunities for safety, efficiency, and efficacy into SDG&E's UAS operations	P						10	14	10	14	10	14	Zero-Based
21	Research Best Use Cases for Specific Systems as Technology Advances Subtotal				-	-	-	-	-	10	14	10	14	10	14	
22	TOTAL				\$ -	\$ -	\$ -	\$ -	\$ -	\$ 112	\$ 162	\$ 112	\$ 162	\$ 112	\$ 162	

Notes:

- Baseline (B) and Proposed (P).
- Numbers in risk chapter tables may differ due to rounding.
- The purpose of Risk Assessment Mitigation Phase (RAMP) is not to request funding. Any funding requests will be made in the General Rate Case (GRC). The forecasts for mitigations are not for funding purposes, but are rather to provide a range for the future GRC filing. This range will be refined with supporting testimony in the GRC.