

Appendix E

09/17/21 10:37 AM

(Redlined version)

Approved Safety and Operational Metrics for Application to Pacific Gas and Electric Company

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
1	Serious Injuries a	nd Fatalities (SIF) related Safety and Operation	nal Metrics (SOMs)
1.1	Rate of SIF Actual (Employee)	Rate of SIF Actual ¹ (Employee) is calculated using the formula: Number of SIF-Actual cases among employees x 200,000/employee hours worked, where SIF Actual is counted using the methodology developed approved by the Edison Electrical Institute's Occupational Health and Safety Committee.	√ Safety Performance Metric (SPM) #15 (Previously SPM #17)
1.2	Rate of SIF Actual (Contractor)	Rate of SIF Actual (Contractor) is calculated using the formula: Number of SIF-Actual cases among contractors x 200,000/contractor hours worked, where SIF Actual is counted using the methodology developed approved by the Edison Electrical Institute's	√ SPM #16 Previously (SPM #18)

¹ A SIF Actual case as determined using the methodology approved developed by the Edison Electrical Institute's Occupational Health and Safety Committee.

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		Occupational Health and Safety Committee.	
1.3	SIF Actual (Public)	A fatality or personal injury requiring in-patient hospitalization for other than medical observations that an authority having jurisdiction has determined resulted directly from incorrect operation of equipment, failure or malfunction of utility-owned equipment, or failure to comply with any Commission rule or standard. Equipment includes utility or contractor vehicles and aircraft used during the course of business.	√ <u>SPM #20</u> "Previously SPM #22"
1.3	Rate of SIF Potential (Employee)	Rate of SIF Potential (Employee) is calculated using the formula: Number of SIF Potential cases among employees x 200,000/employee hours worked, where a SIF incident, in this case would be events that could have led to a reportable SIF. Potential SIF incidents are identified using the Edison Electric Institute Safety Classification and Learning (SCL) Model. ² As a supplemental reporting requirement to the Potential SIF Rate	N/A

 $[\]frac{2}{\text{Edison Electric Institute Safety Classification and Learning Model by Dr. Matthew Hallowell } \underline{\text{https://esafetyline.net/eei/docs/eeiSCLmodel.pdf}}$

Number Index	Staff Proposed SOMs	Definition	Included as SPM?	
		(Employee), PG&E is also expected to provide information on the program area where the SIF Potential occurred, and the lesson learned from the event.		
1.4	Rate of SIF Potential (Contractor)	Rate of SIF Potential (Contractor) is calculated using the formula: Number of SIF Potential incidents among contractors x 200,000/contractor hours worked, where a SIF incident, in this case would be events that could have led to a reportable SIF. Potential SIF incidents are identified using the Edison Electric Institute Safety Classification and Learning (SCL) Model. As a supplemental reporting requirement to the Potential SIF Rate (Contractor), PG&E is also expected to provide information on the program area where the SIF Potential occurred, and the lesson learned from the event.	N/A	
2	Reliability Related SOMs			
	tained interruption is defined as: "Any interruption not classified as a part of a momentary event. That is, interruption that lasts more than five minutes."			

³ <u>IEEE 1366- Reliability Indices Presentation</u>, February 19, 2019, at 6.

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
2.1	System Average Interruption Duration (SAIDI) (Unplanned)	SAIDI (Unplanned) = average duration of sustained interruptions per metered customer due to all unplanned outages, excluding on Major Event Days, in a calendar year. 4 "Average duration" is defined as: Sum of (duration of interruption * # of customer interruptions) / Total number of customers served. "Duration" is defined as: Customer hours of outages. Includes all transmission and distribution outages.	N/A
2.2	System Average Interruption Duration (SAIDI) (All Outages)	SAIDI (All Outages) — average duration of all sustained interruptions per metered customer due to all outages, including, but not limited to, unplanned outages, planned outages, PSPS outages, and outages on Major Event Days, in a calendar year. "Average duration" is defined as: Sum of (duration of interruption * # of customer interruptions) / Total number of customers served. "Duration" is defined as: Customer hours of outages.	N/A

⁴ January 15, 2021 Response of Pacific Gas and Electric Company to Assigned Commissioner's Ruling Regarding Development of Safety and Operational Metrics available as of September 2, 2021 here: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M359/K864/359864708.PDF

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		Includes all transmission and distribution outages.	
2.3 2.2	System Average Interruption Frequency (SAIFI) (Unplanned)	SAIFI (Unplanned) = average frequency of sustained interruptions due to all unplanned outages per metered customer, except on Major Event Days, in a calendar year. "Average frequency" is defined as: Total # of customer interruptions / Total # of customers served. Includes all transmission and	N/A
2.4	System Average Interruption Frequency (SAIFI) (All Outages)	distribution outages. SAIFI (All Outages) = average frequency of all sustained interruptions per metered customer due to all outages, including, but not limited to, unplanned outages, planned outages, outages due to PSPS, and outages on Major Event Days, in a calendar year. "Average frequency" is defined as: Total # of sustained customer interruptions / Total # of customers served Includes all transmission and distribution outages.	N/A
2.5	Customer Average Interruption Duration Index (CAIDI) (Unplanned)	CAIDI (Unplanned) = average duration of sustained outages per impacted metered customer due to all unplanned outages, excluding on Major Event Days, in a calendar year. "Average duration" is defined as: Sum of (duration of interruption * # of	N/A

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		customer interruptions) / Total number of impacted customers. "Duration" is defined as: Customer hours of outages. Includes all transmission and distribution outages. This metric can be calculated as: SAIDI (All Outages) / SAIFI (All Outages).	
2.6	Customer Average Interruption Duration Index (CAIDI) (All Outages)	CAIDI (All Outages) = average duration of sustained outages per impacted metered customer due to all outages, including, but not limited to, unplanned outages, planned outages, outages due to PSPS, and outages due to Major Event Days, in a calendar year. "Average duration" is defined as: Sum of (duration of interruption * # of customer interruptions) / Total number of impacted customers "Duration" is defined as: Customer hours of outages. Includes all transmission and distribution outages. This metric can be calculated as: SAIDI (All Outages) / SAIFI (All Outages).	N/A

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
2.7	System Average Customers Impacted (All Outages)	System Average Customers Impacted (All Outages) = average number of all metered customers experiencing sustained interruptions due to all outages, including, but not limited to, unplanned outages, planned outages, outages due to PSPS, and outages due to Major Event Days, in a calendar year; "Average customers" is defined as: Number of customers impacted / total number of customers served. Includes all transmission and distribution outages.	N/A

PSPS Related SOMs

Pursuant to D.15-05-042, "[t]he electric investor owned utilities must report on lessons learned from each deenergization event, including instances when de-energization protocols are initiated, but de-energization does not occur, in order to further refine de-energization practices." 5

The reporting period for a PSPS event begins with the first notification of an impending power shut off.

The PSPS ends when the last circuit is restored and customers and critical facilities are notified.⁶

⁵ D.19-05-042, Appendix A, at A3.

⁶ D.19-05-042 Appendix A, at A8-A9.

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
2.8	Number of PSPS (events in a calendar year	N/A
2.9	Duration of each I	PSPS Event in hours in a calendar year	N/A
2.10	Number of Custor calendar year	ners Impacted by each PSPS Event in a	N/A

System Average Outages due to Vegetation and Equipment Damage in <u>High Fire Threat District</u> (HFTD) Areas

Report System Average Outages due to Vegetation and Equipment Damage SOMs specific to Tier 2 and 3 High Fire Threat Districts.⁷

² D.17-01-009 Adopting the Work Plan for the Development of Fire Map 2, as modified by D.17-06-024 Amending the Work Plan for the Development of Fire Map 2.

Number Index	Staff Proposed SOMs	Definition	Included as SPM?			
PG&E shou distribution	For Vegetation and Equipment Damage in HFTD (Major Event Days & (Non-Major Event Days) SOMs, PG&E should delineate outages due to contact with vegetation versus outages caused by equipment, and distribution versus transmission assets. For equipment damage-related outages, the metrics should also be segregated by overhead versus underground.					
2.11 2.3	System Average Outages due to Vegetation and Equipment Damage in HFTD Areas (Major Event Days)	Average number of sustained outages on Major Event Days per 100 circuit miles in HFTD per metered customer, in a calendar year, where each sustained outage is defined as: total number of customers interrupted / total number of customers served	N/A			
2.12 2.4	System Average Outages due to Vegetation and Equipment Damage in HFTD Areas (Non-Major Event Days)	Average number of sustained outages on Non-Major Event Days per 100 circuit miles in HFTD per metered customer, in a calendar year, where each sustained outage is defined as: total number of customers interrupted / total number of customers served	N/A			
3	Electricity Related SOMs					
Wires Down Related SOMs A Wires Down event is defined as follows:						

Number Index	Staff Proposed SOMs	Definition	Included as SPM?		
A Wires Down event occurs when a normally energized overhead primary or transmission conductor is broken and falls from its intended position to rest on the ground or a foreign object.					

satisfies one or more of these conditions:

- 1. A conductor or splice becomes broken,
- 2. A conductor is dislodged from its intended design position due to either malfunction of its attachment points and/or supporting structures or contact with foreign objects (including vegetation),
- 3. A conductor's distance from the ground, structures, or foreign objects (not including vegetation) falls below applicable minimum clearances specified in General Order 95,
- 4. A conductor comes into contact with communication circuits, guy wires, or conductors of a lower voltage, or
- 5. A power pole carrying normally energized conductors leans by more than 45 degrees in any direction relative to the vertical reference when measured at ground level.

This Wires Down events definition excludes vegetation growth related clearance violations in which the conductor does not otherwise violate the five conditions listed above. This definition includes service drops.

Primary distribution and transmission circuit miles are counted separately, and then added together even if they are found on the same spans.

This definition applies to all Wires Down related metrics.

3.1	Wires Down Major Event Days in HFTD Areas (Distribution)	Number of Wires Down events on Major Event Days involving either overhead primary or secondary distribution or overhead transmission circuits divided by total circuit miles of overhead primary distribution and transmission lines x 1,000, in HFTD Areas in a calendar year.	√ SPM #2 (Except that SPM #2 does not specify HFTD and is reported as number instead of rate of Wires Down events)
3.2	Wires Down Non- Major Event Days in HFTD Areas (Distribution)	Number of Wires Down events on Non-Major Event Days involving either overhead primary or secondary distribution or overhead transmission circuits divided by total circuit miles of overhead primary distribution and transmission lines x 1,000, in HFTD Areas, in a calendar year. Distribution and transmission circuit miles are counted separately and then added	√ SPM #1 (Except that SPM #1 does not specify HFTD and is reported as number instead of rate of Wires Down events)

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		together even if they are found on the same spans.	
3.3	Wires Down Major Event Days in HFTD Areas (Transmission)	Number of Wires Down events on Major Event Days involving overhead transmission circuits divided by total circuit miles of overhead transmission lines x 1,000, in HFTD Areas in a calendar year.	√ SPM #2 (Except that SPM #2 does not specify HFTD and is reported as number instead of rate of Wire-Down events)
<u>3.4</u>	Wires Down Non-Major Event Days in HFTD Areas (Transmission)	Number of Wires Down events on Non-Major Event Days involving overhead transmission circuits divided by total circuit miles of overhead transmission lines x 1,000, in HFTD Areas, in a calendar year.	√ SPM #1 (Except that SPM #1 does not specify HFTD and is reported as number instead of rate of Wire-Down events)
3.3 3.5	Wires Down Red Flag Warning Days in HFTD Areas (Distribution)	Number of Wires Down events in HFTD Areas on Red Flag Warning Days involving either overhead primary or secondary distribution or overhead transmission circuits divided by Red Flag Warning Distribution Circuit-Mile Days in HFTD total circuit miles of overhead primary distribution and transmission lines x 1,000, in HFTD, in a calendar year.	<u>N/A</u>
3.6	Wires Down Red Flag Warning Days in HFTD	Number of Wires Down events in HFTD Areas on Red Flag Warning Days involving overhead transmission circuits divided by Red Flag Warning	<u>N/A</u>

Number Index	Staff Proposed SOMs	Definition	Included as SPM?		
	Areas (Transmission)	<u>Transmission Circuit-Mile Days in</u> <u>HFTD Areas in a calendar year.</u>			
Patrols <u>&</u> I	Patrols & Inspections & Compliance Related SOMs				
3.4 3.7	Missed Overhead Distribution Patrols Compliance in HFTD Areas	Overhead Distribution Patrols Compliance in HFTD: Total number of overhead electric distribution structures that fell below the minimum patrol frequency requirements divided by the total number of overhead electric distribution structures that required patrols, in HFTD area in past calendar year. where, "Minimum patrol frequency" refers to the frequency of patrols as specified in GO 165. "Structures" refers to electric assets such as transformers, switching protective devices, capacitors, lines, poles, etc.	√ SPM #26 (Except that the previous SPM #33 includes all areas)		
3.5 3.8	Missed Overhead Distribution Detailed Inspections Compliance HFTD Areas	Overhead Distribution Detailed Inspections Compliance in HFTD: Total number of structures that fell below the minimum inspection frequency requirements divided by the total number of structures that required inspection, in HFTD area in past calendar year. where,	√ SPM #26 (Except that the previous SPM #33 includes all areas)		

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		"Minimum inspection frequency" refers to the frequency of scheduled inspections as specified in GO 165. "Structures" refers to electric assets such as transformers, switching protective devices, capacitors, lines, poles, etc.	
3.6 3.9	Missed Overhead Transmission Patrols Compliance in HFTD Areas	Same as SOM #3.4 definition, except for Transmission instead of Distribution. Overhead Transmission Patrols Compliance in HFTD: Total number of structures that fell below the minimum patrol frequency requirements divided by the total number of structures that required patrols, in HFTD area in past calendar year. where, "Minimum patrol frequency" refers to the frequency of patrols requirements, as applicable. "Structures" refers to electric assets such as transformers, switching protective devices, capacitors, lines, poles, etc.	√ SPM #26 (Except that the previous SPM #33 includes all areas)
3.7 3.10	Missed Overhead Transmission Detailed Inspections	Overhead Transmission Detailed Inspections Compliance in HFTD: Total number of structures that fell below the minimum inspection frequency requirements divided by the total number of structures that required	√ SPM #26 (Except that the previous SPM #33 includes all areas)

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
	Compliance in HFTD Areas	inspection, in HFTD area in past calendar year. where, "Minimum inspection frequency" refers to the frequency of scheduled inspections requirements, as applicable. "Structures" refers to electric assets such as transformers, switching protective devices, capacitors, lines, poles, etc.	
3.8	Distribution V egetation/Cond uctor Clearance Inspections in HFTD Areas	Distribution Vegetation/Conductor Clearance Inspections Compliance in HFTD Areas: Total circuit miles of Vegetation/Conductor Clearance Inspections on distribution circuits that fell below the minimum Vegetation/Conductor Clearance Inspections frequency divided by the total distribution circuit miles that required vegetation Vegetation/Conductor Clearance Inspections, in HFTD area, in past calendar year. "Vegetation/Conductor Clearance Inspections frequency" refers to the frequency of utilities' scheduled inspections, as applicable. GO 95 specifies the minimum Vegetation/Conductor Clearance requirements.	↓ SPM #34 for distribution Except that SPM #34 includes all areas

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
3.9	Transmission Vegetation/Co nductor Clearance Inspections in HFTD Areas	Transmission Vegetation/Conductor Clearance Inspections Compliance in HFTD Areas: Total circuit miles of Vegetation/Conductor Clearance Inspections on transmission circuits that fell below the minimum Vegetation/Conductor Clearance Inspections frequency divided by the total transmission circuit miles that required vegetation Vegetation/Conductor Clearance Inspections, in HFTD area, in past calendar year. "Vegetation/Conductor Clearance Inspections frequency" refers to the frequency of utilities' scheduled inspections, as applicable. GO 95 specifies the minimum Vegetation/Conductor Clearance requirements.	↓ SPM #34 for transmission Except that SPM #34 includes all areas
3.10 3.11	Backlog Compliance Metries in HFTD GO-95 Corrective Actions in HFTDs	Total number of overdue overhead electric work orders in high fire threat districts that exceeded the maximum allowable/allotted time frame to complete the work order divided by the total number of closed or still open overhead electric work orders in high fire threat districts in past calendar year, evaluated at the end of the year. where, "Work Orders" include maintenance, and corrective work orders (including	√ <u>SPM #29</u> (Previously SPM #43) SPM #42

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		those generated as a result of patrols and detailed inspections), electric system hardening, and Enhanced Vegetation Management programs.	
		The number of Priority Level 2 notifications that were completed on time divided by the total number of Priority Level 2 notifications that were due in the calendar year in HFTD. Consistent with GO 95 Rule 18 provisions, the proposed metric should exclude notifications that qualify for extensions under reasonable circumstances.	

Percentage of time that utility personnel respond (are on site) within 60 minutes after receiving a 911 call (electric related), with onsite defined as arriving at the premises to which the eall relates. Average Time in minutes to Respond On-site to an Electric Emergency Notification from the time of notification to the time a Representative (or qualified first responder) arrived onsite. The data used to determine the Average Time shall be provided in increments as defined in GO 112-F 123.2 (c). The time in minutes that an electric crew person or a qualified first responder takes to respond after receiving a call which results in an emergency order.	Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		Emergency Response	personnel respond (are on site) within 60 minutes after receiving a 911 call (electric related), with onsite defined as arriving at the premises to which the call relates. Average Time in minutes to Respond On-site to an Electric Emergency Notification from the time of notification to the time a Representative (or qualified first responder) arrived onsite. The data used to determine the Average Time shall be provided in increments as defined in GO 112-F 123.2 (c). The time in minutes that an electric crew person or a qualified first responder takes to respond after receiving a call which results in an	(Except that SPM #3 is

Number Index	Staff Proposed SOMs	Definition	Included as SPM?		
"Ignition" re	Ignitions & Wildfires Related SOMs "Ignition" refers to the number of CPUC-Reportable ignitions and any other ignitions determined by the Authority Having Jurisdiction to originate from utility infrastructure.8				
3.12 3.13	Number of CPUC- Reportable Ignitions in HFTD Areas (Distribution)	Number of CPUC-reportable ignitions involving overhead distribution circuits in HFTD Areas	√ SPM #4 (Except that SPM #4 in all areas and does not include the updated SOM definition)		
3.13 3.14	Percentage of CPUC-Reportable Ignitions in HFTD (Distribution)	Number of CPUC-reportable ignitions involving overhead distribution circuits divided by circuit-miles of overhead primary distribution lines x 1,000 transmission circuits in HFTD Areas.	N/A		
3.14 3.15	Number of CPUC- Reportable Ignitions in HFTD (Transmission)	Number of CPUC-reportable ignitions involving overhead transmission circuits in HFTD Areas. Same as 3.12, except for Transmission instead of Distribution	√ SPM #4 (Except that SPM #4 in all areas and does not include the updated SOM definition)		
3.15 3.16	Percentage of CPUC- Reportable Ignitions in	Number of CPUC-reportable ignitions involving overhead transmission circuits divided by circuit-miles of overhead transmission lines x 1,000 in HFTD Areas.	N/A		

⁸ The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: 1) Ignition is associated with a utility's powerlines and 2) something other than the utility's facilities burned and 3) the resulting fire traveled more than one meter from the ignition point.

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
	HFTD (Transmission)	Same as 3.13, except for Transmission instead of Distribution	
4	Natural Gas Relate	ed SOMs	
4.1	Number of Gas Dig-Ins per 1000 USA tickets on Transmission and Distribution pipelines	Number of Excavation Damages per 1000 Underground Service Alert (USA) tickets by any party on all pipelines. The number of gas dig-ins per 1,000 Underground Service Alert (USA) tickets received for gas. A gas dig-in refers to damage (impact or exposure) which occurs during excavation activities and results in a repair or replacement of an underground gas facility. Excludes fiber and electric tickets.	√ SPM #5
4.2	Number of Overpressure Events	Overpressure events as reportable under GO112-F 122.2(d)(5).	.√ <u>SPM #30</u> <u>Previously SPM #44</u>
4.3	Normalized Overpressure Events	Number of Large Overpressure Events normalized to the number of pressure transducers on the gas system. (Overpressure events as reportable under GO112 F 122.2(d)(5)).	N/A

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
4.4 4.3	Time to Respond On- site to Emergency Notification	Time to Respond On-site to Gas Emergency Notification, reported in increments as per GO 112-F 123.2 (e). Average time to respond on-site to a Gas Emergency Notification from the time of notification to the time a Gas Service Representative (or qualified first responder) arrived onsite. The data used to determine the Average Time shall be provided in increments as defined in GO 112-F 123.2 (c) as supplemental information, not as a metric.	√ SPM #11
4.5	Gas Shut-In	Time to shut-in gas when gas release occurs on a main, reported in increments per GO 112 F 123.2 (c). Median Time to shut-in gas when gas release occurs on a main. The data used to determine the Median Time shall be provided in increments as defined in GO 112-F 123.2 (c) as supplemental information, not as a metric.	√
4.4	Time, Mains		SPM #8
4.6	Gas Shut-In	Time to shut-in gas when gas release occurs on a service, reported in increments per GO 112 F 123.2 (e). Median Time to shut-in gas when gas release occurs on a service. The data used to determine the Median Time shall be provided in increments as defined in GO 112-F 123.2 (c) as	√
4.5	Time, Services		SPM #9

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
		supplemental information, not as a metric.	
4. 7 4.6	Uncontrolled Release of Gas on Transmission Pipelines	The number of leaks, ruptures, or other loss of containment on transmission lines for the reporting period, including gas releases reported under Title 49 CFR Part 191.3	N/A
4.8 <u>4.7</u>	Time to Resolve Hazardous Conditions	Median response time to resolve Grade 1 leaks. Time starts when the utility first receives the report and ends when a utility's qualified representative determines, per the utility's emergency standards, that the reported leak is not hazardous or the utility's representative completes actions to mitigate a hazardous leak and render it as being non-hazardous (i.e., by shutting-off gas supply, eliminating subsurface leak migration, repair, etc.) per the utility's standards. Response time is reported in increments per GO 112 F 123.2 (c). The data used to determine the Median Time shall be provided in increments as defined in GO 112-F 123.2 (c) as supplemental information, not as a metric	N/A
5	Clean Energy Goa	ls	

Number Index	Staff Proposed SOMs	Definition	Included as SPM?
5.1	Clean Energy Goals Compliance Metrics	Commission established clean energy targets that it has failed to meet during the reporting period Progress toward PG&E bundled and direct access (aggregated) individual load serving entity zero-emitting resource minimum procurement obligations (net qualifying capacity amounts) as adopted in Decision (D.) 21-06-035, D.19-11-016 and any subsequent decision(s) in Rulemaking.20-05-003, or a successor proceeding, updating these requirements.	N/A
	I	-	
<u>6</u>	Quality of Service ⁹		
<u>6.1</u>	Quality of Service Metrics	The Average Speed of Answer for Emergencies metric is a safety measure relating to multiple risks, as well as a quality of service and management measure, and is defined as follows: Average Speed of Answer of the call-in seconds for Emergency calls handled in Contact Center Operations.	<u>N/A</u>

 $[\]frac{9}{2}$ The Staff SOMs Proposal (Appendix C) inadvertently omitted this SOM but it was discussed and proposed in Section 9 of the Staff Proposal.