



WMP Workshop

S-MAP Safety Metrics Presentation



Steven Haine, P.E.
Senior Engineer
Safety & Enforcement Division
Risk Assessment and Safety Advisory Section

September 18, 2019



Background of SMAP Proceeding

- R.13-11-006 Order Instituting Rulemaking to Develop a Risk-Based Decision-Making Framework to Evaluate Safety and Reliability Improvements and to incorporate a risk-based decision-making framework into the energy utilities' GRCs.
- D.14-12-025 adopted the risk-based decision-making framework, consisting of S-MAP and RAMP Phase proceedings. S-MAP deals with risk models and risk evaluation methodologies.
- The end-product of each S-MAP proceeding will be a common risk modeling and evaluation approach.
- Development of safety metrics is part of the SMAP proceeding.



Difference between S-MAP and WMP Metrics

- S-MAP concentrates on both leading and lagging indicator metrics. Leading indicators are preferred.
- From S-MAP Phase 1 decision D18-08-018: “Leading indicators are more suited to the goals of the proceeding than lagging indicators, because the goal is to understand potential safety incidents in advance and avoid them. ... Future S-MAPs can seek to replace the remaining lagging indicators with leading indicators as new data becomes available.”



Difference between S-MAP and WMP Metrics

- WMP metrics, as required by SB901, focus on measuring performance (i.e. results). This implies WMP metrics focus on lagging indicators. This is key difference S-MAP metrics and WMP metrics.



Adopted S-MAP Metrics

- There are 26 adopted metrics in all, but only 4 are related to overhead conductors.
- **1. Transmission & Distribution (T&D) Overhead Wires Down events** - Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; **excludes downed secondary distribution wires and “Major Event Days”** (typically due to severe storm events) as defined by the IEEE. Unit is in number of wire down events.
- **2. Transmission & Distribution (T&D) Overhead Wires Down events - Major Event Days** - Same metric as in 1., except downed secondary wires and “Major Event Days” are included when calculating wire down events.



Adopted S-MAP Metrics

- **3. Electric Emergency Response** - The percent of time utility personnel respond (are on-site) within one hour after receiving a 911 (electric related) call, with on-site defined as arriving at the premises to which the 911 call relates.
- **4. Fire Ignitions** - 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. Unit in number of ignitions.

All adopted electric overhead conductor metrics up to this point are lagging indicators. Efforts underway to develop leading indicators.



Current S-MAP Metrics being Proposed

- Forty-two new electric conductor metrics are under consideration by the S-MAP metrics Technical Working Group (TWG). Vast majority are leading indicators. Some samples, not complete list:

No.	Proposed Metrics from Augst 23 Comments	Proposed by
1	Percentage of copper conductor of size #6 <i>or smaller</i> used in primary distribution circuits.	OSA/SCE
2	Percentage of aluminum conductor steel reinforced of size #4 <i>or smaller</i> used in primary distribution circuits	OSA/SDG&
3	Percent of Primary Voltage OH Conductor Miles Configured as Ungrounded or Three-Wire	OSA



Current S-MAP Metrics being Proposed

No.	Proposed Metrics from Augst 23 Comments	Proposed by
4	Circuit Miles Conforming to Current Design Standards as a Percent of Total Miles	OSA
5	Conductor Miles with High Risk Properties that Experienced Overloading Conditions in a Year	OSA
6	Percentage of Circuit Miles Overloaded by at Least 105%	Cal Advocates
7	Percentage of Circuits Overloaded by at least 105%	Cal Advocates



Current S-MAP Metrics being Proposed

No.	Proposed Metrics from Augst 23 Comments	Proposed by
8	Percent of OH Conductor that does not meet Current Minimum Wire Size Standards in HFRA	Cal Advocates
9	Percent of OH Conductor that does not meet Current Minimum Wire Size Standards in non-HFRA	Cal Advocates
10	Number of Non-Wooden Poles and the Total Poles on the System	Cal Advocates
11	Average Age of the Oldest 5% of Wooden Poles in the System	Cal Advocates



Current S-MAP Metrics being Proposed

No.	Proposed Metrics from Augst 23 Comments	Proposed by
13	Percentage of wire down events with root cause analysis performed	OSA
14	Number of Inspections Completed on Time as a Percent of Total Number of Inspections	OSA
15	Number of Repeat Findings in Audits and/or Management Reviews Related to OH Conductors	OSA
16	Backlog of Repair Items Associated with OH Conductor by Transmission and Distribution	OSA



Current S-MAP Metrics being Proposed

No.	Proposed Metrics from August 23 Comments	Proposed by
17	Number of OH Corrective Actions Completed on Time versus the Total Number OH Corrective Actions Identified in a Year	OSA
18	<i>Distribution of time</i> required to resolve corrective actions/deficiencies related to overhead conductor (<i>i.e. the distribution of time to complete post-inspection corrective actions</i>)	OSA
19	Average Number of Days Between Inspections and Completion of Post-Inspection Corrective Actions	Cal Advocates



Current S-MAP Metrics being Proposed

a	Percentage Miles of System Hardened (in HFTD, in non-HFTD)	PG&E/Cal Advocates
b	<i>Percentage miles of circuits with vegetation management work completed (in compliant with GO 95 Rule 35 and Public Resources Code 4293) in HFTD, divided by the total miles of circuits of planned vegetation management work in the past calendar year. The total miles of EVM work planned for the past calendar year</i>	PG&E/Cal Advocates
c	Age of Overhead Conductor (Plotted as histogram/bar graph)	OSA



Current S-MAP Metrics being Proposed

No.	Proposed Metrics from Augst 23 Comments	Proposed by
d	Miles of System Removed in HFTD areas	PG&E
e	Miles of System Undergrounded in HFTD area	PG&E
f	Percent of #4 Aluminum Conductor Steel Reinforced (ACSR) conductor miles used in corrosion zones or other small conductor metric	PG&E
g	Total corrective actions completed versus the total corrective actions identified by inspections per GO 165.	



Current S-MAP Metrics being Proposed

No.	Proposed Metrics from Augst 23 Comments	Proposed by
h	Number of GO 165 inspections and patrols due during the measurement period and completed on time as a percent of the total number of inspections and patrols due in the measurement period.	PG&E
i	QA audit corrective actions completed related to overhead conductors.	PG&E
j	Percent of covered conductor out of total overhead conductor in Tier 3 HFTD	TURN



Thank You!

**For Additional Information:
Steven Haine, Senior Utilities Engineer 415-355-5553**

