



R.20-07-013

Workshop on Safety and Operational Metrics



Safety Policy Division

Risk Assessment and Safety Analytics Section

Steven Haine, P.E.

January 28, 2021



Purpose of Workshop

- Nov. 17, 2020 - Assigned Commissioner's Ruling directed PG&E to propose an initial set of Safety and Operational Metrics (SOMs).
- Jan. 15, 2021 - PG&E served its SOMs proposal.
- Jan. 25, 2021 - Parties served comments on PG&E's proposal.
- Jan. 28, 2021 - Safety Policy Division conducts workshop on PG&E's proposal.
- March/2021 - Safety Policy Division will submit staff proposal on SOMs.



Agenda

Rulemaking 20-07-013 Track 2 Workshop

1. Introduction – Moderator, Safety Policy Division (10:00am-10:10am)
2. Opening Remarks – Commissioner Rechtschaffen (10:10am-10:20am)
3. PG&E Presentation on Proposed Safety and Operational Metrics (SOMs)– PG&E (10:20am-11:00am)
4. Break (11:00am-11:10am)
5. Utility's Perspective on PG&E's Proposed SOMs – SCE, Sempra (11:10am-12:00pm)
6. Lunch Break (12:00pm-12:45pm)
7. Intervenors' Perspectives on PG&E's Proposed SOMs – TURN, Cal Advocates (12:45pm-1:30pm)
8. Break (1:30pm-1:40pm)
9. Question and Answer Session – Moderator, Safety Policy Division (1:40pm-3:00pm)
10. Summary and Next Steps for Track 2– Moderator, Safety Policy Division (3:00pm-3:15pm)



Commissioner Remarks

Risk-Based Decision-Making Framework (R. 20-07-013)

Phase I. Track 2: Safety & Operational Metrics

Workshop #1 – January 28, 2021





SOMs Development Approach

1 Anchored on the risks associated with the majority of safety & reliability exposure in our core operating units

Applied multiple lenses for consideration of key risks

Considered quality of service / management / customer lenses as being at the core of safe and reliable service

2 Inventoried existing key metrics tied to risks

Safety Performance Metrics (SPMs)

Key Risk Indicators (KRIs)

Other key company or CPUC reported metrics

3 Assessed for leading vs. lagging indicator of risk to have healthy mix

Leading

[Proven predictors of future outcomes or trends; predictive indicator is relevant to the failures that are the root causes of catastrophic risk events]

Lagging

[Measurement of outcomes or trends that have occurred]

4 Assessed for additional criteria to strengthen selection

Benchmarkable

Objective, not subjective

Ability to understand performance through trending over time

Influenced by factors we can control

More outcome based than activity based



Safety & Operational Metrics Proposal

Metric	Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliab.	Service / Mgmt.	Risk(s)
Serious Injuries and Fatalities (SIF) —Actual (Employee & Contractor)	Lagging	✓	✓	✓ ¹				Employee and Contractor Safety
SIF—Potential (Employee & Contractor)	Leading	✓	✓					Employee and Contractor Safety
Gas Dig-In Rate	Leading	✓	✓	✓				Loss of Containment on Gas Pipeline
Large Overpressure Events	Lagging	✓	✓					Loss of Containment on Gas Pipeline; Large Overpressure Event
Gas Emergency Response	Leading	✓	✓	✓				Loss of Containment on Gas Pipeline
Reportable Fire Ignitions	Lagging	✓	✓	✓ ²				Wildfire
Transmission and Distribution (T&D) Wires Down	Lagging	✓	✓	✓				Failure of Electric Overhead Assets; Wildfire
Electric Emergency Response	Leading	✓	✓	✓				Failure of Electric Overhead Assets
Safe Dam Operating Capacity	Leading		✓					Large Uncontrolled Water Release
DCPP Reliability & Safety Indicator	Leading	✓	✓	✓				Nuclear Core Damaging Event
System Average Interruption Duration Index (SAIDI) —Unplanned	Lagging	✓	✓	✓ ³				Failure of Electric Overhead Assets
Average Speed of Answer (ASA) for Emergencies	Leading	✓	✓	✓ ⁴				Multiple Risks

Additional key Wildfire risk metrics proposed to be tracked via PG&E's Wildfire Mitigation Plan (WMP)

System Hardening Effectiveness	Performance of critical efforts planned within PG&E's WMP were considered and are recognized as key components of safety and operations at PG&E. These programs and their measures will be outlined in PG&E's WMP filing. Therefore, it's proposed that their performance be managed via annual WMP filings and the Enhanced Enforcement & Oversight Triggering Event defined for the WMP ("Failure to obtain approved WMP or comply with regulatory reporting requirements or metrics, including for PSPS protocols")
Enhanced Vegetation Management Effectiveness	
PSPS Notification Accuracy	
PSPS Restoration Time	

¹ Benchmarking for SIF Actual Count (Employee) is available, which can be used to inform the SIF—Actual (Employee & Contractor) SOM. ² Reportable Fire Ignitions is benchmarkable with other California IOUs. ³ Benchmarking for overall SAIDI is available, which can be used to inform the SAIDI (Unplanned) SOM. Additionally, the other California IOUs track SAIDI (Unplanned), allowing for benchmarking within the state. ⁴ Benchmarking for overall ASA is available, which can be used to inform the ASA for Emergencies SOM.



SIF Actual (Employee + Contractor)

Metric Description	Associated Risk(s)
<p>The <i>SIF—Actual</i> metric is a safety measure relevant to employee and contractor safety risks, and is defined as follows:</p> <p>Any injury or illness resulting from work at/for PG&E that results in:</p> <ul style="list-style-type: none">• A fatality – a work-related fatal injury or illness;• A life threatening injury or illness – a work-related injury or illness that, if not addressed, could lead to a fatality, or a work-related injury or illness that required immediate life-preserving rescue action, and if not applied immediately, would likely have resulted in the death of that person; or• A life-altering injury or illness – a work-related injury or illness that resulted in a permanent and significant loss of a major body part or organ function. <p>PG&E proposes to evaluate this metric on a rolling-average basis.</p>	Employee and Contractor Safety

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Lagging	✓	✓	✓	✓			✓



SIF Potential (Employee + Contractor)

Metric Description	Associated Risk(s)
<p>The <i>SIF—Potential</i> metric is a safety measure relevant to employee and contractor safety risks, and is defined as follows:</p> <ul style="list-style-type: none">• An incident that had the credible potential to cause a fatality, life-altering injury or illness or life-threatening injury or illness.¹ <p>PG&E proposes to evaluate this metric on a rolling-average basis.</p>	Employee and Contractor Safety

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Leading	✓	✓		✓			

1. For purposes of the SIF-Potential metric, PG&E proposes to incorporate the definitions of “life threatening injury or illness” and “life-altering injury or illness” as identified in SIF-Actual metric.

Gas Dig-In (Total)

Metric Description	Associated Risk(s)
<p>The <i>Gas Dig-In Rate</i> metric is a safety measure relevant to risks regarding the loss of containment on gas pipelines, and is defined as follows:</p> <ul style="list-style-type: none"> Number of gas dig-ins per 1,000 Underground Service Alert (USA) tickets received for gas. The dig-in component tracks all dig-ins to PG&E gas subsurface installations. A gas dig-in refers to damage which occurs during excavation activities (impact or exposure) and results in a repair or replacement of an underground gas facility. <p>This metric is similar to the Gas Dig-In Rate used in the SPMs, except that the SPM metric counts only third-party gas dig-ins.</p>	Loss of Containment on Gas Transmission or Distribution Assets

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Leading	✓	✓	✓	✓			✓

Large Overpressure Events

Metric Description	Associated Risk(s)
<p>The <i>Large Overpressure Events</i> metric is a safety measure relevant to risks regarding the loss of containment on gas pipelines, and is defined as follows: Count of large overpressure events. The established pressure limits for large OP events are:</p> <ul style="list-style-type: none"> • High pressure gas distribution • (MAOP 1 psig to 12 psig) greater than 50% above MAOP • (MAOP 12 psig to 60 psig) greater than 6 psig • Low pressure gas distribution by 16 inches water-column • Transmission pipelines by 10% MAOP (or the pressure produces a hoop stress of $\geq 75\%$ Specified Minimum Yield Strength [SMYS], whichever is lower) <p>PG&E proposes to evaluate this metric on a rolling-average basis.</p>	<p>Large Overpressure Event; Loss of Containment on Gas Transmission or Distribution Assets</p>

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service/ Mgmt.	SPM
Lagging	✓	✓		✓			



Gas Emergency Response

Metric Description	Associated Risk(s)
<p>The <i>Gas Emergency Response Time</i> metric is a safety measure relevant to risks regarding the loss of containment on gas pipelines, as well as a quality of service and management measure, and is defined as follows:</p> <ul style="list-style-type: none">Measured from the time PG&E is notified to the time a Gas Service Representative (or a qualified first responder) arrives onsite to the emergency location (including Business Hours and After Hours). The metric measures the average response time for immediate response orders for the performance period.	Loss of Containment on Gas Transmission or Distribution Assets

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Leading	✓	✓	✓	✓		✓	✓

Reportable Fire Ignitions

Metric Description	Associated Risk(s)
<p>The <i>Reportable Fire Ignitions</i> metric is a safety measure relevant to wildfire risks, and is defined as follows:</p> <ul style="list-style-type: none"> Powerline-involved fire incidents annually reportable to the CPUC per D.14-02-015³ and within the utility's High Fire Threat District. A reportable fire incident includes all of the following: (1) Ignition is associated with the utility's powerlines (both transmission and distribution); (2) something other than the utility's facilities burned; and (3) the resulting fire traveled more than one meter from the ignition point. <p>PG&E proposes to evaluate this metric on a rolling-average basis.</p>	Wildfire

Leading / Lagging	Outcome- Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Lagging	✓	✓	✓ ₂	✓			✓

Transmission & Distribution Wires Down

Metric Description	Associated Risk(s)
<p>The <i>Transmission and Distribution Wires Down</i> metric is a safety measure relevant both to wildfire risks and to the risk of failure of electric distribution overhead assets and is defined as follows:</p> <ul style="list-style-type: none"> Instances where a normally energized electric transmission or primary distribution conductor is broken, or remains intact, and falls from its intended position to rest on the ground or a foreign object. A conductor is considered energized unless confirmed in an idle state (i.e., normally de-energized)—excludes Major Event Days as defined by the IEEE.³ 	<p>Failure of Electric Distribution Overhead Assets</p>

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service/ Mgmt.	SPM
Lagging	✓	✓	✓	✓			✓

3. See IEEE Standard 1366.

Electric Emergency Response

Metric Description	Associated Risk(s)
<p>The <i>Electric Emergency Response Time</i> metric is a safety measure relevant to the risk of failure of electric distribution overhead assets, as well as a quality of service and management measure, and is defined as follows:</p> <ul style="list-style-type: none"> 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 call relates. 	Failure of Electric Distribution Overhead Assets

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service/ Mgmt.	SPM
Leading	✓	✓	✓	✓		✓	✓

Safe Dam Operating Capacity

Metric Description	Associated Risk(s)
<p>The <i>Safe Dam Operating Capacity</i> metric is a safety measure relevant to the risk of a large uncontrolled water release, and is defined as follows:</p> <ul style="list-style-type: none"> Measure of the availability of low-level outlet valves, power tunnels and gates that can be controlled at hydro facilities to release water under high reservoir inflow conditions. 	Large Uncontrolled Water Release

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Leading		✓		✓			

DCPP Reliability & Safety Indicator

Metric Description	Associated Risk(s)
<p>The <i>DCPP Reliability & Safety Indicator</i> metric is a safety metric relevant to the risk of a Nuclear Core Damaging Event, and is defined as follows:</p> <ul style="list-style-type: none"> Indicator consists of 11 US nuclear industry benchmarkable indicators indicating reliability and safety performance of units. Elements are rolling performance up to 3 years (1) Unit Capability Factor % (2) Online Reliability Loss Factor % (3) Loss Events (excluding scrams) (4) Unplanned Weighted Manual and Automatic Scrams (5) High-Pressure Safety Injection System Performance (6) Auxiliary Feedwater System Performance (7) Emergency AC Power System Performance (8) Sustained Fuel Reliability (9) Chemistry Effectiveness Indicator Revised (10) Collective Radiation Exposure (11) Total Industrial Safety Accident Index 	Nuclear Core Damaging Event

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Leading	✓	✓	✓	✓			

SAIDI (Unplanned)

Metric Description	Associated Risk(s)
<p>The <i>SAIDI (Unplanned)</i> metric is a reliability metric relevant to the risk of a failure of electric distribution overhead assets, as well as a quality of service and management measure, and is defined as follows:</p> <ul style="list-style-type: none"> The number of minutes associated with unplanned sustained outages that the average customer experiences in a year. It measures all T&D outages and excludes Major Event Days. 	<p>Failure of Electric Distribution Overhead Assets</p>

Leading / Lagging	Outcome-Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Lagging	✓	✓	✓ ⁴		✓	✓	

4. Benchmarking for overall SAIDI is available, which can be used to inform the SAIDI (Unplanned) SOM. Additionally, the other California IOUs track SAIDI (Unplanned) allowing for performance benchmarking within the state.

Average Speed of Answer for Emergencies

Metric Description	Associated Risk(s)
<p>The <i>Average Speed of Answer for Emergencies</i> metric is a safety measure relating to multiple risks, as well as a quality of service and management measure, and is defined as follows:</p> <ul style="list-style-type: none"> Average Speed of Answer (ASA) in seconds for Emergency calls handled in Contact Center Operations 	-

Leading / Lagging	Outcome- Based	Objective	Benchmarks	Safety	Reliability	Service / Mgmt.	SPM
Leading	✓	✓	✓ ⁵	✓		✓	

Risk OIR Workshop – Phase 1 Track 2 Presentation

Safety and Operational Metrics

Kris Vyas

Law Department

Southern California Edison Company

January 28th 2021

Introduction

- The Assigned Commissioner's Ruling requested that parties address PG&E's "proposed SOMs and specify in what additional contexts they could be suitable to apply broadly to all electric and gas IOUs."
- SCE addressed this in detail in Jan 25 written comments

In what additional context the SOMs could be suitable to apply broadly to all electric and gas IOUs

- Imposition of the PG&E Enhanced Oversight and Enforcement Process does not appear to be warranted for SCE
 - No evidentiary or other justification for doing so
 - Commission decision expressly stated that implemented solely because of PG&E-only concerns
 - Financial repercussions of unfounded imposition of Process
- SCE welcomes discussion regarding adding, removing or modifying the current list of metrics to be included in the Safety Performance Metrics Report (SPMR)
- Discussion framework should focus on the SPMR¹
- This discussion can encompass (*non-exhaustive*):
 - Current list of safety performance metrics
 - The SOMs proposed by PG&E
 - Other metrics proposed by Commission staff and intervenors in this OIR
 - Clarification of Commission's intended use for Electric Overhead Conductor (EOC) metrics

1) The current requirements for the SPMR are described in D.19-04-020, page 63, Ordering Paragraphs 1,2 and 6

Additional topic for consideration

- **Setting metric targets**

- There can be serious negative ramifications from setting targets for certain safety metrics
 - Targets may inadvertently lead to implicit pressure to meet those targets
 - despite concerted efforts by management, workers may feel incentive or pressure to not fully report on potential serious injury incidents, in order to “keep meeting the target”
 - Utilities have different starting positions and business lines, and divergent circumstances. Apples-to-apples comparison are challenging, and may give distorted picture of relative performance or gains
- Must address the incremental costs and the appropriate pathway for full and timely recovery of costs associated with meeting the targets

Additional topic for consideration

- **Establishing a baseline set of metrics**

- SCE has only filed one SPMR with the initial set of metrics
- No opportunity to fully examine the effectiveness of the current metrics over an appropriate timeline and based on a sturdy foundation of data
- When examining potentially modifying the current list of metrics, having an established baseline set of metrics in place for several years may be needed to accurately and productively track progress over time

We look forward to the opportunity to further discuss and collaborate on these important topics through workshops and technical working groups.

Thank you!

Back-Up Slide

Potential ambiguities in terminology used in the Scoping Memo and in the Ruling

Metric Category	Decision / Ruling Reference	Description / Use Case
Safety and Operational Metrics (SOMs)	D.20-05-053	Suitable for use as triggering events as specified in the Enhanced Oversight and Enforcement Process approved in D.20-05-053 (PG&E's post-bankruptcy reorganization plan). Specifically and solely applies to PG&E per D.20-05-053.
Safety and Operational <i>Performance</i> Metrics	This term first appears in the Scoping Memo and subsequently in the workshop agenda	SCE is not aware of a formal definition of this metric category.
Safety Performance Metrics	D.19-04-020	Metrics for the annual Safety Performance Metrics Report (SPMR) subject to requirements in D.19-04-020.



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SoCalGas A  Semptra Energy utility®

CPUC Order Instituting Rulemaking To Further Develop a Risk-Based Decision-Making Framework for Electric and Gas Utilities (Risk OIR, R.20-07-013)

Development of Safety and Operational Metrics

January 28, 2021

Agenda

Objective: Address whether there are variances regarding how these adopted metrics should be applied to individual IOUs, whether the safety and operational metrics (SOMs) apply to all IOUs, and how should the Commission adopt the SOMs.

Slide	Discussion
3	SoCalGas's and SDG&E's Perspective on PG&E Proposed SOMs
4	PG&E's Proposed SOMs vs Safety Performance Metrics Reports (SPMR)
5	Appendix

SoCalGas's and SDG&E's Perspective on PG&E Proposed SOMs

- **Number of proposed SOMs already reportable within the current Safety Performance Metrics Report (SPMR)**
 - 6 of 12 SOMs are already captured in SPMR or the definitions of proposed SOMs are similar to metrics within SPMR (some nuanced differences in definitions)
- **Lacking appropriate detail and definitions: “SIF-Potential (Employee and Contractor)”**
 - Unclear on the definition of “*credible potential*”
 - The application of this metric is highly subjective
- **May result in duplicative and/or inconsistent reporting requirements**
 - Fire ignition reporting (annually reported to CPUC per D.14-02-015)
 - GO 112(f) Reporting – Gas Response Reporting, Over Pressure

PG&E Proposed SOMs vs. SPMR

PG&E Proposed SOM	SPMR Metric	Issue/Differences
SIF—Actual (Employee & Contractor)	<ul style="list-style-type: none"> Employee Serious Injuries and Fatalities Contractor Serious Injuries and Fatalities 	Life altering and life threatening – consistent definitions?
Gas Dig-In Rate	Gas Dig-In Rate	<ul style="list-style-type: none"> Proposed SOM reports rate based on all dig-ins. Current SPMR reports on rate for 3rd party dig-ins
Gas Emergency Response	Gas Emergency Response	Consistent start times across utilities? Same sources for start times?
Reportable Fire Ignitions	Fire Ignitions	Same definition as SPMR
T&D Wires Down	T&D Wires Down	<ul style="list-style-type: none"> Proposed metric includes “normally energized...”. Consistent definition of “normally energized”? Raw numbers aren’t comparable across utilities.
Electric Emergency Response	Electric Emergency Response	Same definition as SPMR

Appendix

PG&E's List of Proposed Safety and Operational Metrics

#	Metric	Leading / Lagging	SCG / SDG&E Notes
1	SIF - Actual (Employee & Contractor)	Lagging	Subjective Definition of "Life altering and life threatening"
2	SIF - Potential (Employee & Contractor)	Leading	Subjective Definition of "Credible Potential"
3	Gas Dig-In Rate	Leading	1st, 2nd, 3rd Party Damage Reported Annually GO-112-F
4	Large Overpressure Events	Lagging	"Overpressure" Reported Annually GO-112F
5	Gas Emergency Response	Leading	Already included as part of the annual SPMR
6	Reportable Fire Ignitions	Lagging	Same definition as SPMR
7	Transmission & Distribution (T&D) Wires Down	Lagging	Subjective Definition of "Normally Energized"
8	Electric Emergency Response	Leading	Same definition as SPMR
9	Safe Dam Operating Capacity	Leading	N/A
10	DCPP Reliability & Safety Indicator	Leading	N/A
11	SAIDI (Unplanned)	Lagging	Already included to the Commission "Electric System Reliability Report"
12	Average Speed for Answer for Emergencies	Leading	Subjective Definition of "Emergency"

The Utility Reform Network (TURN)



R.20-07-013

Risk-based Decision-making Framework (RDF)

Track 2 Workshop: Safety & Operational Metrics (SOMs)

**Public Advocates Office
January 28, 2021**

Chris Parkes, Supervisor, Financial Impacts Section, Safety Branch



Safety & Operational Metrics (SOM)

1. Background

- A. [SMAP Decision \(D.19-04-020\)](#) adopted 26 Safety Performance Metrics for larger utilities.
- B. [PG&E Bankruptcy Decision \(D.20-05-053\)](#) adopted an Enhanced Oversight and Enforcement Process in which Safety and Operational Metrics will be used evaluate PG&E safety performance after emerging from bankruptcy.
- C. [RDF Rulemaking \(R.20-07-013\)](#) November 17 2020 [Assigned Commissioner Ruling](#) adopted a schedule for SOM development.
- D. PG&E submitted its [Proposed Metrics](#) on January 15 2021.

2. Discussion

- A. Cal Advocates Initial Metrics Comments.
- B. Recommendations.



Background

PG&E Bankruptcy Decision (D.20-05-053) adopted an Enhanced Oversight and Enforcement Process in which **Safety and Operational Metrics** will be used evaluate PG&E safety performance after emerging from bankruptcy.

Enhanced Oversight and Enforcement Process.

- Roadmap for how the Commission will monitor PG&E's performance.
- Six steps triggered by specific events.
- Does not replace or limit the Commission's regulatory authority.
- PG&E must report a triggering event within 5 days.
- Commission may place PG&E in a non-sequential step upon the occurrence of a specified triggering event.



Background

Enhanced Oversight and Enforcement Process

Step 1: Enhanced Reporting.



Step 2: Commission Oversight of Management and Operations.



Step 3: Appointment of Third-Party Monitor.



Step 4: Appointment of a Chief Restructuring Officer.



Step 5: Appointment of a Receiver.



Step 6: Review of Utility CPCN.

D.20-05-053 Prescribes Step Triggering Events with several triggers based upon PG&E compliance with **Safety and Operational Metrics Performance**.



Discussion - Schedule

Schedule

- The current schedule prevents a full evaluation of proposed metrics and the need to develop additional leading indicator metrics, particularly for electric.
- Safety and Operational Metrics need to be fully evaluated as they will be used both for utility performance evaluation as well as for the Commission's Enhanced Oversight and Enforcement Process.
- In its initial comments, Cal Advocates highlights the need to further develop safety and operational metrics, citing electric emergency response as one example.
- Cal Advocates recommends that the Commission provide time to allow more extensive review and comments on PG&E's proposed Safety and Operational Metrics.



Discussion – Initial Metrics Comments

Cal Advocates Initial Metrics Comments

Backlog Metrics

- Backlog metrics should monitor and assess vegetation management, utility inspection programs, utility maintenance programs, and other utility safety management system programs.
- Backlog metrics should include the percentage of inspections and preventative maintenance work orders completed according to schedule.
- Quality of work completed should be assessed.
- System Hardening Effectiveness and Enhanced Vegetation Management Effectiveness should be defined and assessed.

Corrective Action Metrics

- Metrics should include an evaluation of corrective actions, including repeat findings and corrective action effectiveness.



Discussion – Initial Metrics Comments

Cal Advocates Initial Metrics Comments

PSPS Metrics

- PSPS metrics should include a risk assessment of customer harm.
- Safety impacts associated with PSPS can vary in severity for different sets of customers and this risk should be evaluated. Aggregated outage times fail to adequately assess that risk.

All Metrics

- Accountability measures should be instituted whereby a utility conducts internal and 3rds party audits of each of its metrics programs.



Questions

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Question and Answer Session



Next Steps



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