Staff Proposal for Implementing Safety Culture Assessments for California's Large Investor-Owned Electric and Gas Utilities

California Public Utilities Commission Safety Policy Division

Pursuant to Senate Bill 901 and Rulemaking 21-10-001
May 2023

Contents

1. Executive Summary

Pursuant to the Phase I Scoping Memo in Rulemaking (R.) 21-10-001, the California Public Utilities Commission's (CPUC) Safety Policy Division Staff presents recommendations for actions to implement safety culture assessments for California's four large electric and natural gas investor-owned utilities (IOUs): Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas), and San Diego Gas & Electric Company (SDG&E).

Safety culture assessments of electrical corporations are required as part of Assembly Bill (AB) 1054[1] (Holden, 2019) and Senate Bill (SB) 901 (Dodd, 2018).[2] AB 1054 directs the Commission's Wildfire Safety Division, now the Office of Energy Infrastructure Safety (Energy Safety),[3] to conduct annual safety culture assessments of each electrical corporation, the first of which were published in fall 2021. The AB 1054 assessments are specific to wildfire safety efforts and include a workforce survey, organizational self-assessment, supporting documentation, and interviews.[4,5]

SB 901 directs the Commission to establish a safety culture assessment for each electrical corporation, conducted by an independent third-party evaluator. SB 901 requires that the Commission set a schedule for each assessment, including updates to the assessment, at least every five years, and prohibits the electrical corporations from seeking reimbursement for the costs of the safety culture assessments from ratepayers.[6]

The Commission initiated R.21-10-001 in October 2021 to develop a framework and process for conducting safety culture assessments of regulated IOUs, pursuant to SB 901 and the Commission's responsibilities for safety oversight of gas utilities in California.[7]

In March 2022, the Commission's Safety Policy Division (SPD) hosted a kickoff workshop for the proceeding featuring safety culture experts, safety regulators from the U.S. and Canada, and the Assigned Commissioner for R.21-10-001. Experts provided an overview of safety culture and its history and shared lessons learned from regulating safety culture across industries. Following the kickoff workshop, the Commission held a prehearing conference for the proceeding. In April, the Scoping Memo was issued, which set forth the issues for Phase I of the proceeding, focused on developing a safety culture assessment framework and process for the four large electric and natural gas IOUs.[8]

From June 2022 to February 2023, SPD organized a series of technical working group meetings to present findings and solicit input from parties on the topics in the Scoping Memo. The information discussed in these

---

[1] Stats. 2019, Ch.79, codified in Public Utilities Code Section 8489 (d)(4).

[2] Stats. 2018, Ch. 626, codified in Public Utilities Code Section 8386.2.

[3] The Commission's Wildfire Safety Division transitioned to the California Natural Resources Agency on July 1, 2021, and became the Office of Energy Infrastructure Safety.

[4] Energy Safety's Draft 2023 Safety Culture Assessment (SCA) Guidelines for Electrical Corporations are available at https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53422&shareable=true.

[5] Energy Safety's 2022 Utility Safety Culture Assessments are available at https://energysafety.ca.gov/what-we-do/electrical-infrastructure-safety/wildfire-mitigation-and-safety/safety-culture-assessments/.

[6] SB 901, codified in Public Utilities Code Section 8386.2.

[7] October 7, 2021 Order Instituting Rulemaking to Develop Safety Culture Assessments for Electric and Natural Gas Utilities: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M414/K981/414981208.PDF.

[8] April 28, 2022 Assigned Commissioner's Scoping Memo and Ruling for Phase I of R.21-10-001: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M471/K485/471485952.PDF.

meetings was also aggregated into Safety Policy Division Staff Concept Papers issued through assigned Administrative Law Judge rulings in July[9] and September 2022.[10] The July Concept Paper #1 proposed safety culture definitions, frameworks, and ideas for collaboration for the large electric and natural gas IOUs. The September Concept Paper #2 discussed outlined a proposed safety culture maturity model and options for a safety culture assessment process for the large electric and natural gas IOUs.

SPD Staff developed this staff proposal to answer the questions in the Scoping Memo for Phase I of the proceeding. This staff proposal builds upon and updates the conceptual foundation provided in the July and September Concept Papers. It adds to and modifies the material from the Concept Papers to reflect feedback received during workshops for the proceeding to date and written party comments.

The staff proposal includes five broad recommendations (proposals) for implementing safety culture assessments and overseeing safety culture improvement at the CPUC, summarized below:

1. *Proposal 1: Defining Safety Culture.* SPD recommends definitions of safety culture and related terms for adoption to advance a shared understanding of safety culture between the CPUC, Energy Safety, and IOUs.
2. *Proposal 2: Safety Culture Assessment Framework.* SPD recommends adopting a unified framework, adapted from the framework developed by the U.S. Nuclear Regulatory Commission and Institute of Nuclear Power Operations, for conducting safety culture assessments of the IOUs and monitoring improvement.
3. *Proposal 3: Schedule and Process for the Initial Cycle of Safety Culture Assessments.* SPD recommends implementing an initial cycle of safety culture assessments that includes a comprehensive assessment of each IOU's safety culture conducted once every four years and annual self-evaluation in the three intervening years to monitor improvement. The initial cycle would consist of one round of comprehensive assessments and three years of improvement self-evaluations.
4. *Proposal 4: Measuring and Monitoring Change.* SPD recommends working with utilities and parties to develop leading indicators for monitoring safety culture improvement.
5. *Proposal 5: Collaboration and Role of Third-Party Entities.* SPD recommends establishing a Utility Safety Culture Working Group, facilitated by an expert independent entity, to foster collaboration, refine the safety culture framework, and build capacity for safety culture improvement efforts. At this time, SPD does not recommend that the Commission designate one single third-party entity to conduct the safety culture assessments for the large IOUs.

SPD describes these proposals in detail in the sections that follow.

---

[9] Safety Policy Division Concept Paper #1 from July 2022 is available at:
https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M496/K284/496284419.PDF.

[10] Safety Policy Division Concept Paper #2 from September 2022 is available at:
https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M496/K924/496924012.PDF.

2. Goals and Guiding Principles

Summary

The guiding principles and goals listed below are intended to establish a basis for developing this staff proposal and the initial cycle of safety culture assessments.

A first draft of 11 guiding principles was included in the September 13, 2022 Administrative Law Judge (ALJ) ruling for party comment. Parties presented additional guiding principles for the Commission and broader stakeholder consideration at the October 31, 2022 workshop for R.21-10-001. In light of the existing record, and upon reflection of party feedback from the October 31, 2022 workshop, SPD staff revised the original guiding principles into a list of near-term goals for the initial round of safety culture assessments and longer-term guiding principles for CPUC-industry efforts on safety culture and presented a draft of these at the February 24, 2023 technical working group meeting for the proceeding. Staff further clarified and consolidated the goals and principles following the February 24, 2023 meeting. The revisions to these guiding principles and goals to date are described below.

Discussion

Parties submitted proposed revisions to the first draft of guiding principles in response to the September 13, 2022 ALJ Ruling.

The Small Business Utility Advocates (SBUA) recommended adding new goals to emphasize:
- Increasing trust and partnership between IOUs and the Commission;
- Developing non-punitive means of information-sharing and risk recognition;
- Promoting open communication, questioning, and reporting by employees and contractors at all levels within the IOUs; and
- Incorporating means of assessing and improving the Commission's safety culture to better promote safety of the entities it regulates.[11]

SDG&E, SoCalGas, and PG&E recommended including explicit emphasis on non-punitive learning, with SoCalGas noting that the assessments should be "structured and designed to promote collaboration, engagement, learning, and forward-looking improvement, not punishment or enforcement actions."[12]

Like SBUA, SoCalGas and PG&E also commented that the Commission should recognize the role of the Commission's own safety culture in influencing the safety culture of the utilities it regulates.[13] SoCalGas recommended expanding upon the guiding principles to reflect the Commission's commitment to "mutual improvement," and recognition that "the CPUC and its staff are key partners and influencers of IOU culture."[14] SoCalGas also suggested that the Commission undergo a comprehensive safety culture assessment, a recommendation from the consultant that conducted the safety culture assessment of SoCalGas through Investigation (I.)19-06-014. SoCalGas argued that this would demonstrate the Commission is a committed partner undertaking similar challenges to learn, understand, and continuously improve its culture.[15] PG&E suggested that the principles incorporate a broader recognition of how the culture of the regulator (and other stakeholders) influences the IOUs' culture.[16]

---

[11] SBUA October 3, 2022 comments at 2.

[12] SoCalGas October 13, 2022 comments at 8.

[13] PG&E October 4, 2022 comments at 7-8.

[14] SoCalGas October 13, 2022 comments at 7.

[15] SoCalGas October 13, 2022 comments at 7.

[16] PG&E October 4, 2022 comments at 7-8.

SPD incorporates many of the suggested recommendations from parties into revised goals and principles that underscore trust, non-punitive information sharing, and communication, as listed in the following section. While an assessment of the Commission's own safety culture is not within the scope of this proceeding, it may occur outside of it, and SPD added a principle related to the role of the Commission's safety culture based on SBUA, SoCalGas, and PG&E feedback.

Additionally, PG&E argued that the principles should confirm that the assessment project aims to minimize disruption and confusion to the utilities and their employees,[17] which SPD incorporated into new principles on mitigating unintended consequences of the program.

SCE and SDG&E further commented that contractors and key stakeholders outside of utility employees should not be implicated within the principles.[18] In their reply comments, Cal Advocates took issue with the position of SCE and SDG&E, arguing that utilities can impact the safety culture of their contractors, given that they "set the contractual requirements for contractors to be able to bid for work" and "can require that its contractors are trained, equipped and supervised similarly as the IOU employees."[19] SPD also notes that while assessments of a utility's safety culture should focus on members of the organization, all entities responsible for carrying out utility-directed work paid for by ratepayers, and/or that could implicate a utility's safety outcomes, are implicated within the principles. Contractors and key stakeholders outside of the utility employees should have the opportunity to learn about the results of the assessments and resulting improvement efforts, including what responsibilities these entities have in implementation of the principles.

Finally, SoCalGas noted that the Commission should first work with parties to develop goals for the safety culture assessments, then create principles to be followed to achieve these shared goals.[20] Following the September ALJ ruling, parties presented guiding principles at the October 31, 2022 public workshop for the proceeding, in part based on SoCalGas's suggestion that the Commission host additional working group meetings to converge on goals and guiding principles for the proceeding. PG&E, SCE, SDG&E, and SoCalGas presented a joint proposal with the goal for safety culture assessments being "to influence and support the development and maintenance of healthy safety cultures through non-punitive engagement, collaboration, learning, and continuous improvement."[21]

The Joint Utilities also recommended prioritizing the following four overarching "core principles."
1. CPUC focus on influence and support
2. Non-punitive engagement and collaboration
3. Learning and continuous improvement
4. Prevent potential unintended consequences and recognize limitations.

Additionally, Cal Advocates presented proposed goals for the assessments, including:
1. Promote participation from all contractors
2. Continuous learning
3. Commitment to continuous safety improvement.

Staff agrees with the prioritization and incorporates language from the goals and principles presented by parties at the workshop into this staff proposal setting forth the goals and principles for safety culture assessments.

---

[17] PG&E October 4, 2022 comments at 7.

[18] SCE October 4, 2022 comments at 12; SDG&E October 4, 2022 comments at 9.

[19] Cal Advocates October 19, 2022 comments at 9.

[20] SoCalGas October 13, 2022 comments at 2.

[21] Workshop presentations are available on the SPD Safety Culture and Governance webpage: https://www.cpuc.ca.gov/about-cpuc/divisions/safety-policy-division/safety-culture-and-governance.

Recommendation

Staff recommends adoption of the revised goals and guiding principles set forth below, which reflect input received from parties through formal and informal comments, public workshops, and stakeholder meetings. These goals and principles may evolve based on learning and analysis after implementation of the initial cycle of safety culture assessments.[22]

The order of the following goals and principles does not indicate priority.

Goals for the Initial Cycle of Assessments

SPD developed the following goals to apply to this staff proposal and the initial cycle of safety culture assessments. These goals will be reassessed following the initial cycle round of assessments.

	Goal	Notes
1	Improve safety outcomes by developing and maintaining healthy safety cultures through non-punitive engagement and collaboration.	Adapted from IOU's overarching goal presented at the October 31, 2022 workshop.
2	Institutionalize safety as an intrinsic priority beyond regulatory compliance.	Originally an SPD guiding principle, with some modifications accepted from SoCalGas' September 2022 comments.
3	Develop means for information-sharing and coordination among all stakeholders to recognize risk.	Adapted with modification from SBUA's September 2022 comments.
4	Integrate process and operational safety to help prevent catastrophic events.	Originally an SPD guiding principle, rephrased as a goal, and modified.
5	Promote and adopt a systemic approach to safety culture improvement that encompasses each organization's interactions between human, technical, and organizational factors.[23]	Originally an SPD guiding principle, rephrased as a goal, and modified.
6	Develop methods and tools to measure and monitor IOU safety culture to facilitate early observation, detection, and mitigation.	Originally an SPD guiding principle, rephrased as a goal, and modified.

Guiding Principles

These principles should guide all CPUC-industry efforts on safety culture, including the assessment process and tools used to improve safety culture. They are foundational elements for improving IOU safety performance through safety culture efforts.

	Principle	Notes
1	All stakeholders should use a shared understanding of safety culture.	Adapted with modification from SPD's original guiding principles.
2	All processes should prioritize engagement and collaboration from IOU workers including contractors; local, Tribal, State, and Federal government entities; environmental and social justice and access and functional	Originally an SPD guiding principle, rephrased based on SCE and SDG&E feedback.

---

[22] Staff's reference to an "initial cycle" of safety culture assessments includes: a comprehensive safety culture assessment of each large IOU; and, a multi-year effort to implement and track improvement actions after the comprehensive assessment.

[23] Adapted with modification from the IAEA's "Systemic Approach to Safety;" see: https://gnssn.iaea.org/NSNI/SC/WSSystemicApproach/Compendium_WS%20on%20Systemic%20Approach%20to %20Safety_2016.pdf. A systemic approach to safety is based on the principle of systems thinking.

	needs communities; public interest groups; industry associations; and other key stakeholders.	
3	Safety culture assessment methods should protect privacy, data confidentiality, and anonymity of individual workers.	An SPD guiding principle that derived from February 2022 opening comments California Utility Employees (CUE).
4	Open communication, questioning, and reporting should be encouraged for all workers, including contractors.	Adapted with modification from SBUA's September 2022 comments.
5	All stakeholders should integrate learning and continuous improvement, including evaluation of past safety incidents.	Adapted with modification from IOU core goals presented at the October 31, 2022 workshop.
6	The CPUC should recognize that it can impact, influence, and support the culture of the entities it regulates.	Adapted with modification from IOU core goals presented at the October 31, 2022 workshop and reflective of September 2022 comments from SBUA.
7	The CPUC should recognize and mitigate the potential unintended consequences and limitations of the program.	Adapted with modification from IOU core goals presented at the October 31, 2022 workshop.

3. Primary Proposals

Background

To answer the questions within the Scoping Memo for R.21-10-001, SPD presents five proposals in the following sections:

1. Defining Safety Culture
2. Safety Culture Assessment Framework
3. Schedule and Process for Conducting the Initial Cycle of Safety Culture Assessments
4. Measuring and Monitoring Change
5. Collaboration and Role of Third-Party Entities

For each proposal, SPD includes a "Discussion" section that summarizes written comments from parties, feedback from public meetings to-date, and lessons learned from similar industries and academic literature. Then, SPD outlines a proposed "Recommendation" and describes potential next steps for resolving the issues in the Scoping Memo.

SPD notes that the five proposals are interrelated and build upon each other.

Proposal 1: Defining Safety Culture

Summary

The Scoping Memo and Ruling asks whether the Commission should adopt the safety culture definition from (I.) 15-08-019 or, whether the Commission should consider other possible definitions for safety culture. Staff proposes a definition for safety culture and related terms in this section.

Discussion

Building upon information in I.15-08-019, SPD included preliminary definitions of safety and safety culture in its first Concept Paper and solicited feedback on these definitions in the July 2022 ALJ Ruling. In response to the Ruling, Cal Advocates recommended that public and environmental factors be included within the definition of safety culture.[24] SPD acknowledges this sentiment but explicitly captured these elements in the proposed definition and scope of safety. SPD agrees with Cal Advocates that a broad concept of safety should be adopted, one that includes employees, contractors, the public, as well as process or operational safety, assets, and environmental protection, as reflected in its proposed definition and scope of safety.

SCE argued that contractors should not be included in the definition of safety culture.[25] PG&E recommended removing "risk" from the definition of safety culture.[26] SPD maintains its recommendation to adopt the safety culture definition based on American Petroleum Institute (API) Recommended Practice 1173, which explicitly includes reference to contractors and risk.[27] SPD notes that other experienced safety regulators in the energy industry, such as the Canada Energy Regulator, also include "risk" in their definitions of safety culture. SPD's proposed definition mirrors the definition of safety culture recommended by SoCalGas, based on its safety culture assessment conducted by consultant Evolving Energy Consortium (2EC) through I.19-06-014.

SPD expands upon its definition of safety described below to clarify concepts and terms that may have been undefined or ambiguous in the July 2022 Concept Paper. SPD leveraged existing definitions developed by the Institute of Nuclear Power Operations (INPO), API, the Canadian Energy Regulator, and others to develop the recommended definitions.

Recommendation

SPD recommends adoption of the following definitions, modified from the July 2022 Concept Paper. SPD proposes that these definitions be used in safety culture assessment and improvement efforts by the CPUC and IOUs to promote a common vocabulary for and shared understanding of safety culture.

Organizational culture is defined as the set of values, principles, beliefs, and norms shared by individuals within the organization, manifested through their planning, behaviors, and actions.[28]

---

[24] Cal Advocates August 15, 2022 comments at 3.

[25] SCE August 15, 2022 comments at 2.

[26] PG&E August 15, 2022 comments at 3.

[27] See American National Standards Institute (ANSI)/ American Petroleum Institute (API) (2015). Recommended Practice 1173, Pipeline Safety Management Systems.

[28] As described by the Commission in its Order Instituting Investigation into PG&E's Safety Culture, I.15-08-019. The definition of organizational culture and description of safety culture from I.15-08-019 is also used in I.19-06-014, Order Instituting Investigation on the Commission's Own Motion to Determine Whether Southern California Gas Company's and Sempra Energy's Organizational Culture and Governance Prioritize Safety.

Safety culture is a subset of organizational culture. Here, we build upon I.15-08-019's definition of organizational culture to develop a working definition of safety culture. Safety culture is the collective set of values, principles, beliefs, norms, attitudes, behaviors, and practices that an organization's managers, employees, and contractor personnel (collectively, "workers") share *with respect to risk and safety*.[29]

Safety, in the context of this proposal, is synonymous with the prevention of harm to people, the environment, and assets. Safety encompasses safety of workers, and members of the public; operational/process safety; facility or asset integrity; security; and environmental protection.[30]

Operational safety relates to mitigating risks that arise from delivery of service or conduct of an activity [31] (e.g., production/generation, transmission, storage, and delivery/ non-delivery of energy).

Process safety refers to the prevention of major incidents, such as unintentional release/discharge of hazardous materials and energies (i.e., electric power and gas) from containment (i.e., pipelines and conductors), by reducing the risks associated with the processes and activities associated with the hazardous materials and energies.[32]

Facility or asset integrity is the ability of the facility or asset to perform its required function effectively and efficiently whilst safeguarding life and the environment.[33]

Utility safety is protection of the public, workers, and utility assets against the consequences of physical failure, human error, organizational failure,[34] damage, or other undesirable events.[35] Utility safety encompasses protection from accidents that impact individuals (i.e., personal safety) as well as from accidents that have organization-wide impact.

Organizational accidents are rare, but the outcomes can be widespread and catastrophic to workers, the public, and the environment (low-probability high consequence events such as San Bruno, Aliso Canyon, and Paradise).[36]

---

[29] Adapted with modification from American National Standards Institute (ANSI)/ American Petroleum Institute (API) (2015). Recommended Practice 1173, Pipeline Safety Management Systems.

[30] Adapted with modification from Canada Energy Regulator (2021). Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture.

[31] International Civil Aviation Organization (2022). Eighth Meeting of the Africa-Indian Ocean Regional Aviation Safety Group (RASG-AFI/8).

[32] Adapted from Center for Chemical Process Safety Glossary https://www.aiche.org/ccps/resources/glossary and Process Safety for Engineers.

[33] Adapted from UK Health and Safety Executive (2007). Key Programme 3 Project Handbook, Asset Integrity. https://www.hse.gov.uk/offshore/kp3handbook.pdf.

[34] See Reason, J. (1997). *Managing the risks of organizational accidents*. Burlington, VT: Ashgate Publishing Company.

[35] Adapted from API 1173.

[36] Adapted from Canada Energy Regulator (2021). Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture.

Proposal 2: Safety Culture Assessment Framework

Summary

In this section, Staff will address the following scoping questions:
- What should the Commission include within the framework of conducting safety culture assessments?

Discussion

Safety culture frameworks are used to describe characteristics of safety culture. A framework can simplify and communicate a complex concept into distinct dimensions to support its understanding and assessment.[37] A framework also can provide a basis for the systematic review of safety culture against a defined set of characteristics.[38]

A framework is a description of safety culture. The Commission first described safety culture in PG&E's Safety Culture Investigation, I.15-08-019[39] where the Commission states that a public utility with a positive safety culture is one having an organizational culture and governance that prioritizes safety and achieves a positive record of safe operation through:
- A clearly articulated set of principles and values with a clear expectation of safety ownership that exceeds full compliance with existing rules and regulations.
- Effective organization-wide communication and continuous organizational learning, education, and testing.
- Committed safety leadership and uniform safety ownership by every individual in the organization, with effective and comprehensive safety metrics, incentives, and accountability.
- Continuous reassessment of hazards and reevaluation of norms and practices.[40]

In this proceeding, SPD elaborates on the description of safety culture provided in the PG&E Safety Culture Investigation to develop a draft safety culture framework. Many different safety culture frameworks have been developed, with varying numbers of dimensions, characteristics, or domains. Despite differences in names and numbers of domains, these frameworks tend to overlap considerably.

SPD first released a draft safety culture framework in its July Safety Culture Concept Paper. This draft framework was developed by a consultant team engaged by the Commission and described safety culture within 10 "domains." This framework would be used in a maturity model for assessing safety culture, called PURE (Public Utilities Risk Evaluation).

In their comments on the July Concept Paper, parties voiced support for a consistent and coordinated safety culture framework used across electric and gas utilities (Cal Advocates, PG&E, SCE, and SDG&E). SCE and SoCalGas added that the framework should be flexible to recognize unique differences between the operations of the utilities.[41]

---

[37] Canada Energy Regulator (2021). Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture.

[38] Canadian Nuclear Safety Commission (2018). REGDOC-2.1.2, Safety Culture.

[39] Order Instituting Investigation on the Commission's Own Motion to Determine Whether Pacific Gas and Electric Company and PG&E Corporation's Organizational Culture and Governance Prioritize Safety. Available at: https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=154363217.

[40] Summarized from I.15-08-019.

[41] SCE August 15, 2022 comments at 1; SoCalGas August 15, 2022 comments at 3.

Cal Advocates recommended adopting the 10 domains from the PURE framework, and suggested adding five additional dimensions from the Canada Energy Regulator's framework for safety culture:

1. Complacency, to address an organizational tendency to disregard known risks;
2. Normalization of deviance, to capture compliant but counterproductive behaviors;
3. Vigilance, to describe a "preoccupation" or an active approach to identifying risks;
4. Empowerment and Accountability, to put a stronger emphasis on the role of frontline employees and contractors; and
5. Resiliency, to note an organization's capability to respond effectively to changing demands to manage potential or emerging risk.[42]

In their comments, the Joint Utilities (PG&E, SDG&E, SCE, SoCalGas) responded with a universal preference for following the Institute for Nuclear Power Operations (INPO) safety culture framework, *Traits of a Healthy Nuclear Safety Culture*[43] instead of the framework proposed by SPD. The Joint Utilities argued that this framework is comprehensive and backed by decades of testing and empirical research, unlike SPD's proposed framework, which lacked validation in the utility environment.[44] SDG&E pointed out that INPO's framework has a proven track record in an industry facing similar safety issues and thus could be used as a starting point, refined to align with specific factors related to the IOU safety needs that may not be applicable to the nuclear industry.[45] Additionally, SoCalGas noted that INPO's normative framework was used in the assessment of its safety culture conducted by consultant 2EC, pursuant to I.19-06-014.[46] In its reply comments, SBUA agreed with the utilities that a validated existing framework should be used, while arguing that "additional emphasis be placed on the development of a culture allowing and encouraging internal reporting and questioning."[47]

Traits of a Healthy Nuclear Safety Culture, INPO 12-012, was developed through a collaborative effort of personnel from the U.S. nuclear industry and the staff of INPO, with input from representatives of regulatory agencies, the public, and the nuclear industry worldwide. Subsequently, the U.S. Nuclear Regulatory Commission (U.S. NRC) released its *Safety Culture Common Language*, an attempt to harmonize differences in terms that different groups have used to describe a healthy nuclear safety culture. The U.S. NRC's *Safety Culture Common Language* uses the agreed upon common language describing traits, attributes, and examples as published in INPO's *Traits of a Healthy Nuclear Safety Culture*.

At the October 31, 2022 public workshop in this proceeding, SPD proposed adopting the Joint Utilities' suggestion to use the U.S. NRC/ INPO 10-trait framework for conducting comprehensive safety culture assessments, with modifications to ensure its applicability to gas and electric utilities in California. SPD staff released a revised draft framework to the service list on February 2, 2023 and requested party feedback on the framework during a February 24, 2023 technical working group meeting. SPD asked parties if the framework should include additional modifications to make it more applicable to the gas and electric industry; negative dimensions or threats;[48] and/or industry-specific examples of each of the 10 traits.

---

[42] Cal Advocates August 14, 2022 comments at 5-8.

[43] INPO 12-012, *Traits of a Healthy Nuclear Safety Culture*.

[44] PG&E August 14, 2022 comments at 5; SCE August 14, 2022 comments at 8.

[45] SDG&E August 14, 2022 comments at 6.

[46] SoCalGas August 14, 2022 comments at 4.

[47] SBUA August 29, 2022 reply comments at 2.

[48] For reference, the Canada Energy Regulator (CER) states that negative dimensions act as cultural threats that breach or degrade the protective layers within the safety system. CER includes four Cultural Threats within its Statement on Safety Culture: (1.) Production Pressure; (2.) Complacency; (3.) Normalization of Deviance; and (4.) Tolerance of Inadequate Systems and Resources.

Cal Advocates proposed adding attributes to the framework based on the Canada Energy Regulator, U.S. NRC, and PURE frameworks in their February 24, 2023 workshop presentation.[49] They included the four negative dimensions or threats from the Canada Energy Regulator's framework under traits within the proposed framework. To ensure its applicability across different utilities, Cal Advocates recommended keeping the framework general and not adding more gas or electric utility specific language. Additionally, Cal Advocates agreed with adding industry-specific examples "in the near future" to help define the traits and clarify the framework.

In its presentation at the February 24, 2023 workshop, Joint Utilities stated the 10-trait INPO framework, as modified by SPD, would provide a solid foundation for starting the safety culture assessment process, and that this process would evolve and improve as the utilities and CPUC gain learning and experience. The Joint Utilities also stated that industry-specific examples could be helpful to discuss and include in the future.

Recommendation

Staff recommends adoption of a safety culture framework based on the normative framework developed by the U.S. NRC's *Safety Culture Common Language* and INPO's *Traits of a Healthy Nuclear Safety Culture*[50] and adapted for California's IOUs. The proposed framework is included as Attachment A. It consists of 10 traits, each with a set of attributes, and explanation of terms used. The framework is not a behavioural checklist but represents overarching principles that provide traits and attributes that are present in organizations with a healthy safety culture.[51]

The 10 traits within the proposed framework are:
1. Leadership Safety Values and Actions
2. Problem Identification and Resolution
3. Personal Accountability
4. Work Processes
5. Continuous Learning
6. Environment for Raising Concerns
7. Effective Safety Communication
8. Respectful Work Environment
9. Questioning Attitude
10. Decision Making

SPD acknowledges the input provided by Cal Advocates at the February 24, 2023 meeting to add attributes and negative dimensions to the draft framework. However, instead of modifying the framework, SPD believes these suggestions should be leveraged to develop indicators and focus areas for monitoring progress within the annual self-evaluations.[52] SPD agrees with the Joint Utilities to start with the U.S. NRC/ INPO framework, then revise the framework as necessary after review of the first round of comprehensive assessments within the initial cycle. This framework has been implemented and tested in the nuclear industry for over a decade, understandable, and widely applicable.

---

[49] All presentations for the February 24, 2023 Technical Working Group meeting are available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/meeting-documents/safety-culture-twg-presentations-r2110001022423.pdf.

[50] U.S. NRC's NUREG-2165, Safety Culture Common Language. (INPO has also published this common language in INPO 12-012, *Traits of a Healthy Nuclear Safety Culture*).

[51] IAEA *A harmonized Safety Culture Model*, last revised May 5, 2020.

[52] See *Proposal 3: Schedule and Process for the Initial Cycle of Safety Culture Assessments* in this document.

As a next step, SPD recommends Staff work with the IOUs and other stakeholders to develop industry-specific examples of each trait, as recommended by both Cal Advocates and the Joint Utilities.

In future phases of this proceeding, the Commission will determine if and how this framework will be adopted for small and multi-jurisdictional electric and gas utilities and gas storage operators.

Proposal 3: Schedule and Process for the Initial Cycle of Safety Culture Assessments

Summary

In this section, Staff will address the following scoping questions:
- Should the safety culture assessments be scheduled such that implementation of Safety Culture Assessment recommendations are considered in utilities' Risk Assessment and Mitigation Phase (RAMP) Applications and General Rate Cases (GRC)?
- How and when should utilities that completed a safety culture assessment in recent years be required to comply with the process developed within this proceeding?
- How should the Commission ensure that the safety culture assessment process developed through this proceeding is complementary to, and not duplicative of, the annual safety culture assessments conducted by the Office of Energy Infrastructure Safety pursuant to Assembly Bill 1054?

Discussion

SB 901 (Dodd, 2018) directs the Commission to set the schedule for safety culture assessments of electrical corporations, including updates to the assessment at least every five years.[53] To determine an appropriate schedule and process for conducting safety culture assessments, Staff considered the legislative mandate of SB 901 and the timing and schedule of related Commission processes.

The Commission requires energy utilities to incorporate a risk-based decision framework to evaluate the safety and reliability improvements in GRC applications, pursuant to D.14-12-025. Through the Commission's RAMP process, utilities describe their plans to identify, assess and mitigate risks. As part of RAMP, each utility must also describe the company's safety culture and executive engagement and compensation policies related to safety. Each utility should "analyze its successes and failures at improving its safety culture and describe its path forward toward a deep and pervasive safety culture." Given the central role of RAMP in planning to mitigate safety risks, Staff considered whether safety culture assessments should align with this broader process.

The Commission also has opened two formal investigations related to safety culture: I.15-08-019 and I.19-06-014. The first, I.15-08-019, prompted by the 2010 pipeline explosion in San Bruno, examines whether PG&E's organizational culture and governance prioritize safety and adequately direct resources to promote accountability and achieve safety goals and standards. In D. 18-11-050, the Commission ordered PG&E to implement recommendations resulting from the safety culture assessment and submit quarterly reports on their implementation progress. Following the 2015 Aliso Canyon gas leak in Los Angeles County and 2017 rupture of Line 235-2 in San Bernardino County, the Commission launched I.19-06-014 to determine whether the organizational culture and governance of SoCalGas and its parent company, Sempra Energy, prioritize safety and adequately direct resources to promote accountability and achieve safety performance goals, standards, and improvements. The timing of future safety culture assessments should be considered and not interfere with these ongoing investigations. However, all large gas and electric utilities will conduct safety culture assessments according to this rulemaking in addition to activities required from the formal safety culture investigations.

Finally, safety culture assessments of electrical corporations are also required as part of AB 1054. AB 1054 directs the Commission's Wildfire Safety Division, now Energy Safety, to conduct annual safety culture assessments of each electrical corporation, the first of which were published in fall 2021. The AB 1054 assessments are specific to wildfire safety efforts and include a workforce survey, organizational self-

---

[53] Senate Bill 901, Dodd. Wildfires. Chapter 626.
https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB901

assessment, supporting documentation, and interviews. Staff considered how the development of the Commission's safety culture assessment requirements should integrate with the timing and scope of Energy Safety's safety culture assessments to avoid duplication or unnecessary regulatory burden.

At the July 22, 2022 Technical Working Group meeting for R.21-10-001, SPD staff outlined a proposed process for conducting safety culture assessments. Staff proposed that utilities complete comprehensive assessments conducted by an independent third party every four years, pursuant to SB 901. In the intervening three years, utilities would complete annual improvement self-evaluations, which would serve as progress reports to monitor effectiveness of safety culture improvement efforts between the four-year comprehensive assessments. The annual improvement self-evaluations would also provide a record of data and information to review within the comprehensive assessments. As part of the comprehensive assessments, staff and the independent third-party assessor would review the previous years' improvement self-evaluations and conduct a gap analysis to verify findings and understand the differences between the results of the annual evaluations and comprehensive assessments. This information would be used to update the requirements for the annual evaluations.

Staff described two potential scheduling options for conducting the comprehensive assessments. The first is a synchronized schedule where every four years, each of the large utilities would engage an independent third-party entity to conduct the assessments. In intervening years, the utilities would conduct self-evaluations and develop improvement plans to monitor progress on actions recommended from the comprehensive assessment and report on progress to the CPUC. While the timing of this option would not align with RAMP filings, it would allow SPD to implement process improvements on a coordinated timeframe since the comprehensive assessments would be completed in the same year. Utilities could also share lessons learned and common themes from comprehensive safety culture assessments with each other and with the CPUC on the same schedule.

As a second option, utilities would eventually conduct comprehensive assessments on a staggered schedule in the same year the RAMP reports are filed. In intervening years, utilities would conduct self-evaluations and report on progress to the CPUC. While this timing would allow an explicit tie between the safety culture assessments and risk management and funding processes, it may add complexity in determining the timing of subsequent comprehensive assessments. Since model and guideline updates would follow comprehensive assessments and these assessments would take place in different years, it may be challenging to implement process updates in a coordinated way across utilities. Sporadic updates could also cause confusion and hinder like-for-like comparisons for sharing lessons learned between utilities.

During the July 2022 workshop and within a subsequent September 2022 ALJ Ruling, SPD solicited feedback on whether the comprehensive assessments should be completed by all utilities in the same year, or on a staggered schedule to align with the utilities RAMP filings; if the first comprehensive assessment should be completed in 2023; and how the Commission should ensure that the safety culture assessment process developed through this proceeding is complementary to, and not duplicative of, the annual safety culture assessments conducted by Energy Safety pursuant to AB 1054.

Parties responded with differing opinions on the preferred timing and schedule for the safety culture assessments. SCE and PG&E recommended a synchronized schedule to foster learning between utilities and to avoid the complication associated with linking it to the RAMP.[54] Cal Advocates recommend adopting a staggered schedule that eventually aligns with RAMP to allow for more scrutiny on each assessment from the Commission and stakeholders, and to ensure ongoing model and process improvements instead of waiting for updates every four years.[55]

---

[54] SCE October 4, 2022 comments at 2; PG&E October 4, 2022 comments at 1-2.

[55] Cal Advocates October 4, 2022 comments at 2-5.

Additionally, SDG&E and PG&E argued that starting assessments in 2023 would be premature.[56] SCE and SoCalGas noted that the new framework should be phased in to allow completion of planned and ongoing assessments that are either being conducted internally or have been directed by the Commission.[57] Cal Advocates suggested that only SDG&E and SCE start assessments in 2023, because the other large utilities have completed Commission-directed assessments in recent years.[58]

Lastly, SD&GE and PG&E encouraged the Commission to consider and incorporate Energy Safety's process into a single safety culture assessment process.[59] PG&E and Cal Advocates also suggested convening stakeholders to integrate and align requirements, where appropriate.[60] SCE pointed out that the Commission and Energy Safety should explicitly define the scope of their assessments to avoid overlap.[61]

Recommendation

To develop this proposal, Staff:
- Benchmarked practices with other national and international regulators of energy, rail, and nuclear industries;
- Consulted with safety culture researchers and practitioners;
- Leveraged the learnings from other regulated industries[62] and past safety culture efforts at the CPUC;
- Applied its experienced with the North American Regulators Working Group on Safety Culture; and
- Considered the information and record gathered through this proceeding.

Staff's proposal consists of a comprehensive safety culture assessment conducted every four years and annual improvement self-evaluations in-between assessments. Both the comprehensive assessment and self-evaluation would be based on the framework presented in the previous section. The comprehensive assessment should provide IOUs and their leadership with insights on the potential safety culture strengths and weaknesses and form the basis for improvement actions. Ultimately, the IOU should translate the cultural insights gained from the assessment into actionable improvements. However, monitoring safety culture requires more than an assessment every four years. To that end, the self-evaluations are intended to provide a roadmap for improvement and to monitor safety culture in between assessments. The self-evaluation would use indicators to monitor the effectiveness of improvement efforts and of best practices that support safety culture advancement prior to the next comprehensive assessment.

Creating and maintaining a positive safety culture is a continuous and ongoing process of intentional effort. The assessment should be viewed not as an end in itself, but a means to guide an improvement process. Likewise, the process proposed here should not be viewed as compliance that will ensure a positive safety culture, but rather a part of a safety culture toolkit IOUs should employ in the continued improvement process illustrated below.

---

[56] SDG&E October 4, 2022 comments at 4; PG&E October 4, 2022 comments at 3.

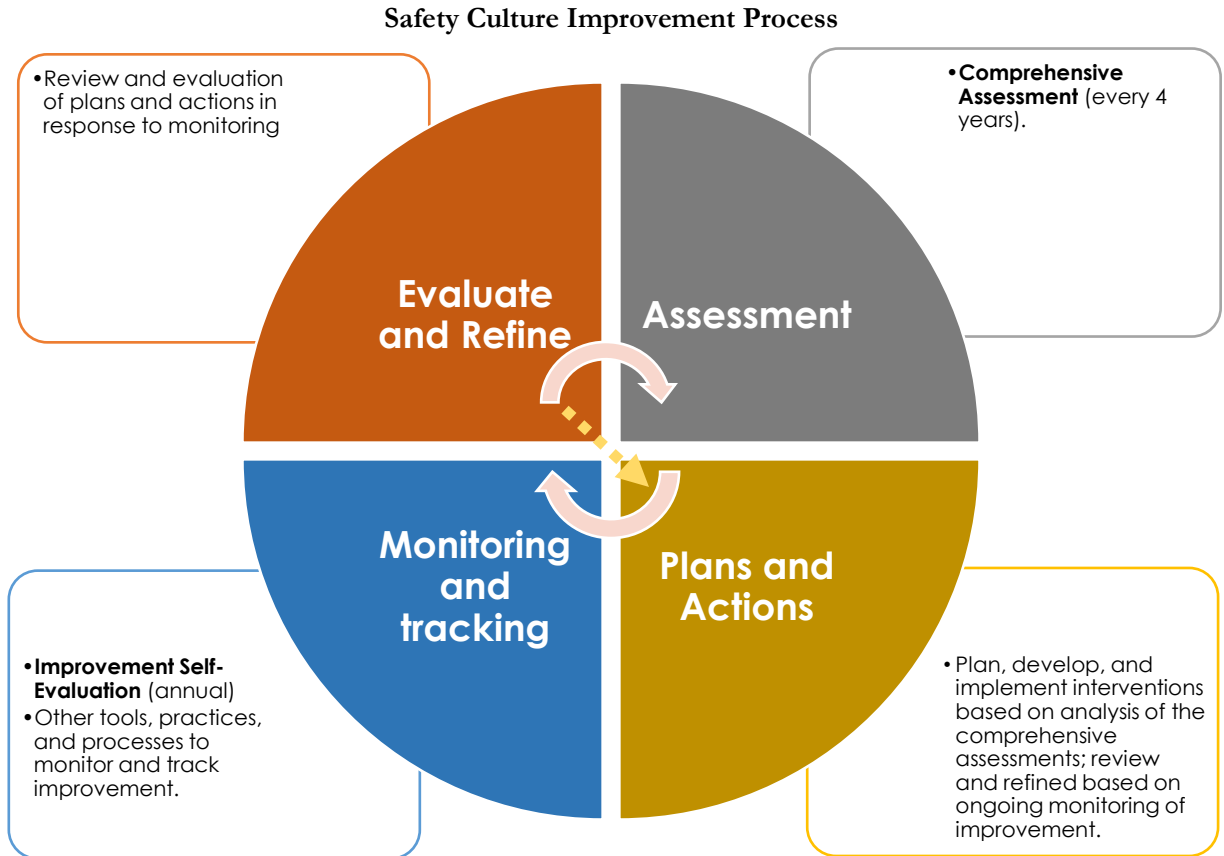[57] SCE October 4, 2022 comments at 3; SoCalGas October 4, 2022 comments at 3.

[58] Cal Advocates October 4, 2022 comments at 2.

[59] SDG&E October 4, 2022 comments at 5; PG&E October 4, 2022 comments at 3.

[60] PG&E October 4, 2022 comments at 3; Cal Advocates October 4, 2022 comments at 6.

[61] SCE October 4, 2022 comments at 3-4.

[62] In developing this proposal, Staff relied heavily on the work by National Academies of Science's "Strengthening the Safety Culture of the Offshore Oil and Gas Industries", published in 2016, as a source for the state of safety culture research, and best practices.

Safety Culture Improvement Process

- Review and evaluation of plans and actions in response to monitoring

- **Comprehensive Assessment** (every 4 years).

Evaluate and Refine

Assessment

Monitoring and tracking

Plans and Actions

- **Improvement Self-Evaluation** (annual)
- Other tools, practices, and processes to monitor and track improvement.

- Plan, develop, and implement interventions based on analysis of the comprehensive assessments; review and refined based on ongoing monitoring of improvement.

In summary, the proposed comprehensive assessment is a rigorous assessment of safety culture – what lies behind quantifiable safety metrics and outcomes – to be performed by a third-party assessor. It provides a window into the underlying safety culture elements that drive safety outcomes. On the other hand, the annual self-evaluation is a simpler and less resource intensive tool for tracking and monitoring actions towards improving safety culture in between assessments, performed by the IOU, and summarized below.

A. Comprehensive Assessment	B. Improvement Self-Evaluation

• Every 4 years.
• Comprehensive view into all aspects of safety culture based on framework.
• Conducted by independent third-party evaluator.
 	
• **Involves**:
  • Multi-method approach to data collection.
  • Triangulation of data across methods.
  • Qualitative and quantitative techniques.
  • Gap analysis of improvement self-evaluations based on comprehensive assessment results to improve and tailor monitoring and tracking for IOU in next cycle.
  • Customized to include evaluation of concerns and follow-up action from past assessment and lessons learned from previous cycle.
 	
• **Output** used for IOU improvement actions, and to modify self-evaluation requirements for IOU and industry (cross-IOU evaluation conducted by CPUC/Independent Organization).
	• Annual (3 years in between assessments).
	• Monitoring and tracking in between assessments.
	• Focused on safety culture outcomes and practices that support improvement based on the framework.
	• Performed by IOU management, with optional verification by CPUC and/or third-party organization.
	
	• **Involves:**
	  • Faciliated focus groups of IOU's management.
	  • Primarily quantitative; applies focus areas to monitor tangible improvement outcomes in between assessments.
	  • Customized to incorpoate improvements based on gap analysis from comperhenssive assessment.
	  • Modified to incorpotate lessons learned from cross-IOU evaluation.
	
	• **Output** monitored annually and evaluated in comprehensive safety assessment.

The proposed assessment and evaluation processes and their associated activities within the framework are further discussed below.

Comprehensive Assessment
The primary goal of the comprehensive assessment is to provide a deep and rich understanding of the safety culture strengths and weaknesses of the IOU in relation to the normative framework. The insights gained from the assessment should result in IOUs implementing improvement efforts and ultimately minimize potential negative safety outcomes. Safety culture improvement is gradual, and it takes time to see results. A proposed assessment cycle of four years allows for change to take place while spacing out the resource demands on the IOUs over longer periods.

A comprehensive assessment would evaluate the safety culture of each IOU, and in parallel a cross-IOU review would identify common themes and trends. These components are described below.

Assessment of each IOU
Consistent with the requirements set forth in legislation, the comprehensive assessment must be conducted by an independent third-party evaluator. Initially, the IOU should conduct a competitive bid to identify the top candidates for final selection and approval by the CPUC. Standardized selection criteria should be developed for use by the IOUs. The selection process should be reviewed to incorporate lessons learned and evaluate the right mix of CPUC oversight after the initial round of comprehensive assessments are conducted for all IOUs.

The assessment of each IOU would include the following components:
- Multi-Method Comprehensive Assessment. A comprehensive assessment should employ a multi-method approach to collecting cultural data, including questionnaires/surveys, interviews, focus

groups, site observations, and document reviews.[63] This approach is recognized for combining the strengths and mitigating the weaknesses of individual assessment methods to achieve a practical mix of benefits without the resource-intensity of some approaches.[64] The approach would employ both qualitative and quantitative techniques. The data gathered should be triangulated across the different methods to extract commonalities, identify differences and inconsistencies, and help validate the findings while providing a richer picture of the safety culture. Interpreting the data should result in findings about the strengths and weaknesses relative to the normative framework, conclusions, and actionable recommendations to allow the IOUs to effectively identify suitable interventions. Best practices developed and validated by other high hazard industries more advanced in safety culture efforts, such as nuclear and aviation, could be employed to obtain robust and actionable results.[65]

- _Progress Evaluation._ In addition to providing a comprehensive view of the safety culture based on the framework, the assessment should also evaluate progress made by the IOU since its last assessment, considering specific weaknesses identified in previous comprehensive assessments and the efficacy of the IOUs post-assessment follow-up.

- _Validation of Annual Improvement Self-Evaluations._ To understand the accuracy of the annual improvement self-evaluation results and effectiveness of the annual requirements, the review should validate the results of the self-evaluations against the comprehensive assessment to identify and interpret gaps, differences, inconsistencies, and similarities. Additionally, the review should inform process improvements in the CPUC's requirements for the self-evaluations. The intent is to iteratively improve on the focus areas to be monitored in between assessments and respond to the specific needs of each IOU. The review should recommend improvements to the self-evaluation requirements so that aspects can be tailored to the specific needs of the IOU, based on the comprehensive assessment results.

Cross-IOU Review

This analysis will identify gaps, issues, and potential process improvements pertinent to all IOUs. Having items standard across all IOUs, whether specific to gas, or electric, or both, will facilitate ease of use and comparison, and will bring attention to industry-wide issues and best practices. This review may be performed by a combination of the CPUC, a third-party organization (discussed in later sections of this proposal), and the IOUs. Working groups may be established to develop process improvement and other recommendations based on the analysis.

Improvement Self-Evaluation

Bringing awareness to safety culture weaknesses through assessments every four years is not sufficient to embed continued improvement. Leaders need to act on the insights gained and continually manage the improvement process. To manage the process, it is critical to know if key practices are having the intended impact, course correct as necessary, and gain awareness of possible cultural decline in real-time.

For example, if an assessment reveals that workers perceive a gap between management pronouncements about the importance of safety and management actions that appear to be unsupportive of safety, this finding can trigger a more targeted conversation about what types of management actions (e.g., not committing significant budget dollars to improving safety) are driving this perception and how management can better align its words with its actions. Monitoring the actions (e.g. percent of budget committed to improving safety) would be necessary to manage improvement prior to the next assessment.

---

[63] Surveys have become a common method to assess safety culture in many industries, including the utility industry. However, surveys are not an effective assessment tool on their own. Using a multi-method approach is recognized amongst researchers, experts, and regulators, as providing a richer view of safety culture. "Triangulating" the data across methods acts as a "check" or verification of the findings.

[64] Variations of the multi-method approach are adopted and recommended in other high hazard industries.

[65] Adapted from CER's Safety Culture Assessment Guidance.

The improvement self-evaluation is intended to monitor effectiveness of continued improvement efforts and best practices that support safety culture advancement, on an annual basis, relative to the framework. Unlike the comprehensive assessment, which provides a deep picture of the safety culture – including the underlying values, beliefs, and norms – the self-evaluation is a more limited pulse check of the "visible" actions through safety culture outcomes and indicators.[66] The improvement self-evaluation applies more tangible indicators by focusing on visible actions and outcomes (i.e. the reflection of the safety culture through programs and practices). However, this tangibility comes with limitations as indicators neither provide a rich picture of the culture nor measure it directly. Rather, these point to signals that may provide information about the relative health of the culture for further exploration. From the earlier example, the percent of budget committed to improving safety alone does not measure the safety culture or demonstrate whether the action is effective (i.e., if the budget was actually spent on safety, and if it had the desired impact). However, alongside a suite of indicators that also point to effectiveness of actions (e.g., safety outcomes), the collective set of indicators can provide visibility to the improvement efforts and relative health in between assessments.

In terms of frequency, the self-evaluation should be conducted annually between comprehensive assessments. The tool allows monitoring on a more continuous basis than would be practical with a comprehensive assessment.[67] The self-evaluation consists of IOU's senior management self-evaluating its organization on a series of focus areas and indicators based on the normative framework. This will occur through a series of facilitated focus groups rather than being evaluated by an outside entity, limiting impacts on resources.

Initially, the focus areas will consist of a limited set common to all IOUs. The set will continually evolve and be improved upon, over time, based on the insights gained from the comprehensive assessments. The long-term goal for this tool is to develop a robust set of focus areas and indicators that best reflect and support improvement of the safety culture framework traits and include a mix of indicators that are standard across IOUs and some that are specific to each IOU. To do so, the set will be validated and reviewed based on learnings from the comprehensive assessments as described in the previous section. An outside organization, such as the CPUC and/or a third-party organization (discussed in later sections of this proposal) may also conduct verifications of results of the self-evaluations, as needed (i.e., document reviews).

Energy Safety also conducts wildfire-related annual safety culture assessments of each electrical corporation, which include a workforce survey, organizational self-assessment, supporting documentation, and interviews. Additionally, natural gas operators are required to submit annual Gas Safety Plans as required by Public Utilities Code Sections 961 and 963, pursuant to D.12-04-010.[68] The Commission could receive submittal of its improvement self-evaluations concurrently or after the IOUs complete these other annual reporting requirements. For any focus areas that overlap with the other reports, utilities can refer to the relevant areas of the other reports instead of duplicating their reporting.

---

[66] Schein's iceberg model is useful to illustrate that some cultural aspects of an organization are visible while some are hidden and difficult to interpret. The comprehensive assessment will address and interpret all aspects of culture, including the underlying or "hidden" aspects driving outcomes. On the other hand, the self-evaluation relates more to the "visible" actions which in turn better lend themselves to the development of metrics (both qualitative and quantitative). Focusing on visible actions offers a limited signal.

[67] Although the comprehensive assessments multi-method approach reaches a more optimal compromise between accuracy and cost/resource demand, it is still a fairly intense and involved process compared to the self-evaluation.

[68] D.12-04-010 at 19 states that the Gas Safety Plan: "conveys the Executive Officer's safety performance expectations, policy principles, and goals/objectives for the gas utility's safety performance. The rationale for developing a gas safety plan is to motivate a gas utility to reflect upon its existing methods and for it to change, to optimize, or to enhance the existing methods, using the elements promulgated by SB 705 and the lessons learned from the San Bruno incident, as appropriate, to ensure that the gas utility has a prudent plan in place to protect public safety and worker safety." See: https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/164613.PDF

Safety Culture Framework Activity Cycle
With each iteration of the safety culture framework activity cycle, the tracking and monitoring requirements should be continually validated and consider a mix of both IOU-specific and industry-wide issues and concerns. Likewise, planning for the next comprehensive assessment should incorporate the lessons learned from the preceding activities. That cycle is illustrated below.
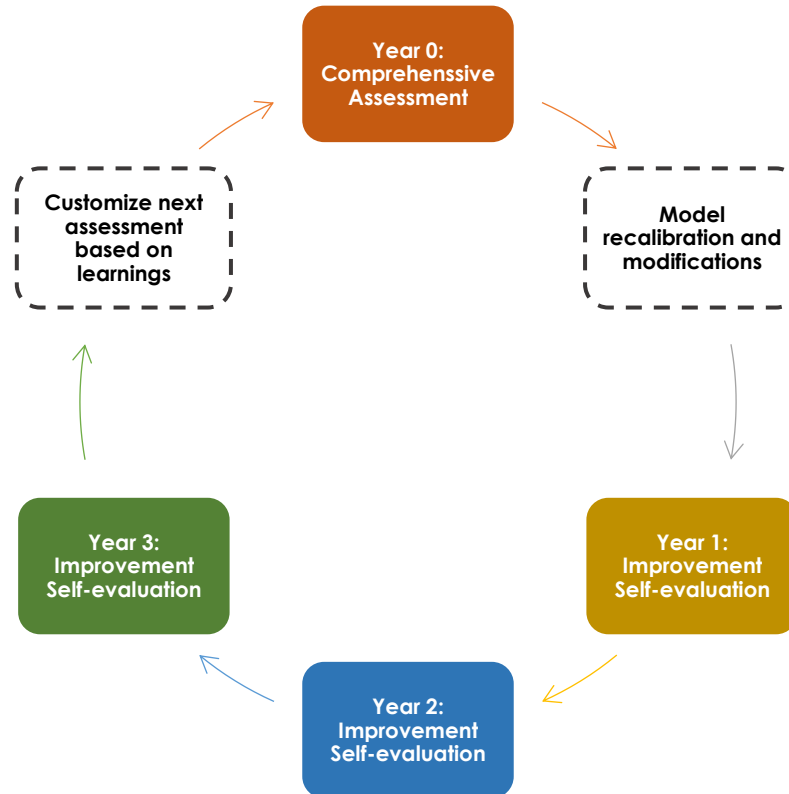
Schedule for the Initial Cycle
If an IOU has completed a comprehensive assessment as proposed here within the last four years prior to initiating the first cycle, the IOU may count that assessment as the start of its activity cycle. The CPUC should review and determine whether the IOU's internal assessment fulfills the intent and comprehension level of the comprehensive assessment. The self-evaluations should still be customized and modified for monitoring and tracking prior to the next comprehensive assessment.

Staggered Schedule for Subsequent Assessments
After the initial cycle of comprehensive assessments, assessments should be conducted on a staggered schedule so lessons learned can be incorporated following each assessment. Staggering assessments would also help reduce any constraints resulting from a potentially limited pool of qualified and available independent assessors while spacing out demand on CPUC resources. Ultimately, aligning with the RAMP cycles would be beneficial but should not be the primary objective when determining the schedule, at least initially and until better experience with the cycle is gained through the initial cycle.

Process Updates
Safety Culture is dynamic. To support the IOUs in their journey, the safety culture assessment process should be evaluated after the first cycle is completed for all IOUs. For at least the initial cycle of assessments, the CPUC should adopt a non-punitive and collaborative approach to oversight of the activities that will foster continued improvement and build trust. At the end of the initial cycle, the approach, framework, activity cycle

and all its required components should be re-evaluated to incorporate lessons learned and re-design as necessary.

To recognize and support the iterative continued improvement of this process, along with the need for transparency and standardization, additional details and instruction related to implementing the requirements of this proceeding could be memorialized via "Recommended Practice" documents or other similar vehicle issued at the CPUC Staff level. Such "Recommended Practice" documents could provide necessary guidance and instruction to ensure consistent and clear implementation while allowing for more efficient and timely improvement of the process without burdening the formal CPUC regulatory system and stakeholder's resources. After the initial cycle of assessments, these guidance documents could be formally adopted by the Commission for use in future assessments.

Proposal 4: Measuring and Monitoring Change

Summary

In this section, Staff will address the following scoping questions:

- What framework mechanisms could be implemented to ensure safety culture assessments are focused on actual safety improvement within the industry?
- What safety outcomes or metrics should be used to evaluate the efficacy of the safety culture assessment process developed within this proceeding?
- What methodologies should be employed in the safety culture assessments to ensure results are comparable across regulated entities and can measure changes in safety culture over time?
- Should the Commission formally adopt a maturity model to use in safety culture assessments for all electric and gas utilities, and gas storage operators?

Discussion

Analysis of major safety accidents has shown that organizational culture, specifically the values, attitudes, beliefs, and behaviors related to safety and risk, may influence safety outcomes.[69] However, because safety culture is an abstract construct it is challenging to define, and improvement cannot be directly measured.[70] At the kickoff workshop for this proceeding in March 2022, Dr. Mark Fleming described the challenges of measuring safety culture, and how indicators of organizational culture can be deceptive, become distorted if used as targets, and create an illusion of objectivity.[71]

Still, regulators can develop indicators to better understand safety culture threats and defenses over time. Dr. Fleming stated good indicators are accurate (difficult to manipulate and directly related to system risk), predictive (leading indicators of future system states and performance), and current (reflective of information in real time). Safety culture maturity models have been used alongside indicators in the oil and gas industry to help organizations understand their current level of safety culture maturity and the actions required to reach the next level.[72]

For example, the North American Regulators Working Group on Safety Culture (NARWGSC), convened by the Canadian Energy Regulator, initiated a Safety Culture Indicators Research Project in 2014. The goal of this project was to identify a suite of indicators that could be used to facilitate greater awareness and understanding of cultural threats and defenses in the oil and gas industry. While the indicators do not directly measure safety culture, they point to signals of strength or weakness that may provide an indication of the relative health of the organization's culture.[73] NARWGSC also structured each indicator within a maturity model.

Additionally, Staff notes the Commission tracks safety performance outcomes of the large IOUs through

---

[69] Mearns, K., Flin, R., Gordon, R. & Fleming, M. (1998). Measuring safety culture in the offshore oil industry. Work and Stress, 12(3), 238-254.

[70] Dr. Mark Fleming, March 11, 2022, Workshop Presentation, "Safety Culture: Measuring and improving." Available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-policy-division/meeting-documents/safety-culture-oir-workshop-presentation_03112022.pdf.

[71] Dr. Mark Fleming, March 11, 2022, Workshop Presentation, "Safety Culture: Measuring and improving."

[72] Fleming, M. (2001). "Safety culture maturity model." United Kingdom.

[73] North American Regulators Working Group on Safety Culture (NARWGSC). (2016). Safety Culture Indicators Research Project: A Regulatory Perspective. Available at: https://www.cer-rec.gc.ca/en/safety-environment/safety-culture/safety-culture-indicators-research-project-regulatory-perspective.pdf

annual Safety Performance Metrics Reports, as required by D.19-04-020[74] and D.21-11-009.[75] These reports include 32 leading and lagging metrics covering electric, gas, worker, and public safety. While some of the Safety Performance Metrics are leading metrics that can help predict future risks and hazards, others are lagging metrics that help illustrate current and retrospective safety performance.

In response to the September ALJ Ruling, SCE and Cal Advocates agreed that the Commission should adopt leading and lagging metrics empirically linked to safety culture and outcomes to monitor safety culture improvement over time.[76] The utilities suggested leveraging existing Safety Performance Metrics.[77] Additionally, SDG&E, Cal Advocates, and PG&E suggested that the Commission use indicators and metrics with the primary goal to monitor improvement and compare results over time within a single utility, not across utilities.[78] To compare results across utilities, SCE suggested that all utilities use evidence-based models to ensure a like-for-like comparison.[79]

Recommendation

SPD recommends that the Commission work with the utilities and other stakeholders to develop focus areas for the annual improvement self-evaluations and develop leading indicators to monitor progress within each focus area. This also could be an initial task for the Utility Safety Culture Working Group described in Proposal 5.

SPD agrees with Dr. Paul Schulman that developing leading indicators should be a "cooperative and collaborative research and development project," not a retrospective exercise focused on single accidents or compliance and punishment.[80] To begin the indicator development process, SPD recommends using the NARWGSC indicators as a starting point. SPD notes that the indicator development process may take time, given that NARWGSC began their process of developing indicators in late 2015 and completed the effort in 2018.

The indicators developed through this process, like the NARWGSC indicators, should be considered as a tool to use to identify data points for collection and analysis and a way to operationalize the traits in the safety culture framework into something more concrete.[81] The goal of using indicators as a tool is to identify signs of strength or weakness in an organization's culture that could impact safety outcomes; however, the indicators should not be used as prescriptive regulatory compliance, a compliance checklist, or a tool for enforcement.[82]

---

[74] D. 19-04-020, Phase Two Decision Adopting Risk Spending Accountability Report Requirements, available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M288/K389/288389255.PDF.

[75] D. 21-11-009, Commission Decision Addressing Phase I Track 1 and 2 Issues, available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M421/K107/421107805.PDF.

[76] SCE October 4, 2022 comments at 8; Cal Advocates October 4, 2022 comments at 8.

[77] PG&E October 4, 2022 comments at 5; SCE October 4, 2022 comments at 9; SoCalGas October 4, 2022 comments at 5; SDG&E October 4, 2022 comments at 7.

[78] SDG&E October 4, 2022 comments at 7; Cal Advocates October 4, 2022 comments at 4; PG&E October 4, 2022 comments at 5.

[79] SCE October 4, 2022 comments at 10.

[80] Dr. Paul Schulman, March 11, 2022 Workshop Presentation.

[81] North American Regulators Working Group on Safety Culture (NARWGSC) (2018). Safety Culture Indicators Research Project Continued Learning. Available at: https://www.cer-rec.gc.ca/en/safety-environment/safety-culture/north-american-regulators-working-group-safety-culture-safety-culture-indicators-research-project-continued-learning-2018.html#s1.

[82] NARWGSC. (2018). Safety Culture Indicators Research Project Continued Learning.

Proposal 5: Collaboration and Role of Third-Party Entities

Summary

In this section, Staff will address the following scoping questions:
- How can the Commission develop a framework for conducting safety culture assessments that provide greater opportunity for collaboration among regulators and regulated industry representatives?
- What mechanisms could be used in such implementation that ensure accountability through coordination and collaboration as opposed to a framework based primarily on a protectionist centered model?
- Should the Commission designate one specific entity with expertise in safety culture to conduct the independent safety culture assessments required by law? If so, should this entity be a public entity that is independent of the Commission?

Discussion

At the kickoff workshop for this proceeding on March 11, 2022, Dr. Schulman summarized two approaches to safety culture assessment and improvement:

An *accountability, responsibility, and compliance-based approach* that features:
- An adversarial relationship between the regulator and utility
- A focus on measured deficiencies in specific safety culture elements, and timetables for their remedy as part of prescriptive regulation
- Formal legal proceedings on the acceptance of results with possible fines and punishments
- A standardized assessment process with the same metrics applied for numerical comparison across utilities.

A *learning-based approach* that features:
- Safety culture assessments as a cooperative research and development process between the utility and the regulator
- An assessment process conducted in teams that include representatives from the regulator as well as company employees and safety experts
- Strategies and methods employed for the assessment that are assessed as part of a learning and improvement process
- Safety culture indicators and measurements are tested and revised for reliability and validity, including their long-term correlation with observable behaviors and safety outcomes.[83]

The questions in the scoping memo directed parties to explore how the Commission could adopt the second approach outlined by Dr. Schulman, focused on learning and collaboration.

Later, during the June 24, 2022 Technical Working Group meeting, SPD staff, Dr. Schulman, and parties presented strategies for building collaboration among regulators and utilities. SPD, Dr. Schulman, and the Joint Utilities' presentations overlapped considerably, sharing common themes for facilitating collaboration and citing similar examples of lessons learned from effective safety culture regulators.

Staff described lessons learned from other industries for fostering collaboration between the regulator and regulated entities. For example, the Canada Energy Regulator hosts regular meetings with the industry to discuss safety culture trends, share information on progress on safety culture initiatives, and work together to address safety culture blind spots and move towards improvement. The Canada Energy Regulator also shares

---

[83] Dr. Paul Schulman, March 11, 2022 Workshop Presentation.

resources and guidance to support industry-initiated assessments and follows up with the industry through an annual survey to review the effectiveness of these resources. Other regulators, including the Canadian Nuclear Energy Commission, Contra Costa County, and Pipeline Hazardous Materials Safety Administration, have collected safety culture insights during inspections, safety management system audits, or on-site visits. This allows regulators to apply a cultural lens to inspections and site visits and collect information from a variety of sources to proactively understand broad safety culture risks and trends over time. Regulators such as the Federal Aviation Administration (FAA) have also established mechanisms for voluntary information sharing. FAA's Aviation Safety Information Analysis and Sharing (ASIAS) system, launched in 2007 to reduce airline incidents, has become a trusted repository of high-volume, high-quality data and information to promote opportunities for reducing accidents and incidents.[84] ASIAS has served as a model for similar efforts at the Pipeline and Hazardous Materials Safety Administration (PHMSA) to establish a Voluntary Information Sharing platform for pipeline operators and other pipeline safety stakeholders.[85]

At the June 24 Technical Working Group meeting, the Joint Utilities suggested adopting a common framework that facilitates trust and transparency; leveraging lessons learned from collaboration from other industries, such as the nuclear and airline industry; creating a dynamic where all utilities fully participate in efforts; and recognizing that there is no one-size-fits-all solution to improving safety culture. Additionally, the Joint Utilities suggested setting up a structure includes ongoing, facilitated working groups to promote learning, sharing, and networking to engender trust, and creating opportunities for formal and informal collaboration to learn from industry associations, safety culture experts, and other regulators. Finally, the Joint Utilities presented findings from other regulators who have demonstrated regulatory commitment to safety culture efforts:[86]

1. *Institute of Nuclear Power operations (INPO)*: INPO is a nongovernmental corporation that was established in 1979 after the accident at Three Mile Island to promote safety and reliability in the operation of nuclear electric generating stations. All organizations that have direct responsibility and legal authority to operate or construct commercial nuclear electric generating plants in the U.S. are members of the Institute.[87] The Joint Utilities noted that INPO uses a framework aligned with the Nuclear Regulatory Commission for inclusion in self-assessments, root cause analysis, and training. INPO facilitates formal peer assessments of nuclear plants to identify areas for improvements, strengths, and "rank" plant performance relative to other plants.

2. *U.S. Nuclear Regulatory Commission (U.S. NRC)*: The Joint Utilities summarized the U.S. NRC's efforts to work collaboratively with the industry and stakeholders to establish a Safety Culture Policy Statement in 2011. To do this, the U.S. NRC facilitated extensive workshops with stakeholders and the public and engaged in industry forums to develop an aligned definition of safety culture and a framework with a set of traits to describe safety culture. The U.S. NRC conducts ongoing outreach and collaboration efforts and develops tools, case studies, and educational resources to facilitate understanding and advancement of safety culture for the industry.

3. *Federal Aviation Administration (FAA)*: The FAA has established safety culture expectations and has helped to create a collaborative environment to advance safety culture through non-punitive empowerment and engagement with the airline industry. The FAA's compliance program explicitly recognizes that enforcement is not always the best solution, focuses on addressing root causes of issues. The FAA can use a non-enforcement response, called a compliance action, to correct an issue

---

[84] For more information on ASIAS, see https://www.faa.gov/newsroom/aviation-safety-information-analysis-and-sharing-program-1.

[85] See PHMSA's Voluntary Information-Sharing System Working Group's Recommendation Report at https://www.phmsa.dot.gov/standards-rulemaking/pipeline/voluntary-information-sharing-system-working-group.

[86] Joint Utility Presentation, June 24, 2022 Technical Working Group meeting.

[87] INPO. (2007). Convention on Nuclear Safety Report: The role of the Institute of Nuclear Power Operations in supporting the United States commercial nuclear electric utility industry's focus on nuclear safety.

when an organization or individual is willing to implement necessary corrective actions. The Joint Utilities also cited the FAA's voluntary information sharing platform, ASIAS.

4. *Canada Energy Regulator (CER)*: The Joint Utilities summarized CER's efforts to establish expectations for the industry in a statement on safety culture that reflected extensive outreach with the industry. CER continues to build trust with the industry through outreach, education, and collaboration and is committed to learning along with the industry. CER also shares educational resources supporting the assessment of safety culture and science of safety culture, organizational behavior, and psychology, and has observed an increase in resources companies allocate to safety culture improvement efforts as a result of this work.

Additionally, throughout the course of the proceeding, Staff and parties have discussed two types of third-party entities and their potential roles in the safety culture assessment and improvement process.

- An independent *third-party assessor* that conducts comprehensive safety culture assessments, as required by SB 901.
- A *facilitator* or *working group*, independent of the Commission, that facilitates collaboration between the industry, stakeholders, and the Commission, assists with aspects of safety culture assessments, and builds capacity for safety culture improvement.

Dr. Schulman described industry best practices for a *third-party assessor* or *evaluator* in his June 24 TWG presentation. He noted that the U.S. NRC allows licensees to select from members of INPO to create teams that conduct safety culture assessments under general guidelines from the U.S. NRC. Dr. Schulman advised that few regulators simply accept a safety culture assessment conducted entirely by an independent private consultant; he cautioned that if safety culture assessments are conducted completely independently of the CPUC, the CPUC would lose the opportunity to develop its own expertise on safety culture work cooperatively with utilities on safety culture. Instead, he recommended that the CPUC identify an appropriate role within the assessment process and further develop its own inspection force and their training around safety management and culture. Dr. Schulman recommended learning from the U.S. NRC and the Belgian Technical Safety Office (TSO), both of which have their inspectors write reports on utility operations and management pertaining to safety culture gained from observations, experiences, and conversations during ongoing visits to a utility.[88] These reports could be submitted to the independent third-party that conducts the safety culture assessment of the utility. Additionally, Dr. Schulman suggested that perhaps an independent expert could also conduct an independent assessment of safety culture within utilities, such as the Center for Chemical Process Safety or California Council of Science and Technology.[89]

With respect to a safety culture *facilitator* or *working group*, other industries make a collaborative body that includes industry representatives central to capacity-building for safety culture improvement. For example, INPO has significant authority to pressure change and "self-regulate" its members and the U.S. nuclear utility industry. While the U.S. NRC retains its responsibility for overseeing licensees and verifying utilities are compliant with federal regulations to assure public health and safety, INPO serves in a complementary function encouraging the industry to go beyond compliance with regulations.[90] INPO has a Board of Directors composed of utility executives, while an Advisory Council of individuals from mainly outside the nuclear industry periodically review the Board's activities. INPO enhances nuclear plant safety and reliability through four main activities: periodic on-site evaluations of each nuclear plant and corporate support

---

[88] Dr. Schulman cites the Safety Culture Observations (SCOs) program conducted by nuclear plants and regulators. See Bernard, B. 2018. "Safety Culture Observations: An Intangible Concept for Tangible Issues Within Nuclear Installations." *Safety*. https://pdfs.semanticscholar.org/fe27/f1d8521f86ffa526a591aa4ae20cedaf20b0.pdf.

[89] Dr. Paul Schulman, March 11, 2022 Workshop Presentation.

[90] INPO. (2007). Convention on Nuclear Safety Report: The role of the Institute of Nuclear Power Operations in supporting the United States commercial nuclear electric utility industry's focus on nuclear safety.

organizations, training and accreditation, events analysis and information exchange, and assistance.[91] In establishing INPO, the U.S. NRC and the industry recognized that INPO should work closely with the U.S. NRC, while at the same time not becoming or appearing to become an extension of or an advisor to the NRC, or an advocacy group for the utilities.[92]

The U.S. offshore industry also has a history of self-regulation, with industry-led organizations such as the American Petroleum Institute (API) developing engineering standards and best practices. API standards are translated into ISO standards and referenced in national offshore drilling regulations.[93] A unit of API was also established after the Deepwater Horizon accident called Center for Offshore Safety (COS), which developed audit protocols, auditor accreditation programs, and guidance documents to help industry administer Safety and Environmental Management Systems (SEMS). However, despite its work to advance offshore safety, experts note that COS's credibility and objectivity is limited by its affiliation with API, which conducts advocacy activities for the industry.[94] This could serve as an important learning lesson for the Commission on the potential limitations of industry-led efforts (and benefits of having an objective and neutral governing body) if it establishes a third-party organization to build capacity for safety culture.

Following the June 24 workshop, feedback on ideas for advancing collaboration and potential roles of independent third-party organizations were solicited from parties through the July and September ALJ Rulings. Parties had differing opinions on the entity that should conduct the assessments. SCE and Cal Advocates pointed out that designating a specific entity would unnecessarily restrict utilities and limit the potential pool of assessors.[95] SCE suggested that instead, the Commission allow utilities to select a consultant with significant utility experience.[96] Cal Advocates suggested that qualified assessors be selected on a utility-by-utility basis, and that assessors should continue to be responsible to the Commission rather than the utilities they are hired to assess (as was done for the Safety Culture Investigations of PG&E and SoCalGas).[97],[98] SoCalGas suggested creating an INPO-like third-party entity that performs assessments of the large IOUs and facilitates sharing of lessons learned.[99] PG&E agreed that having the same third-party assessor for all the large IOUs could be helpful to leverage mutual growth and learning. PG&E also noted the assessor would need experience to assess gas and electric utilities, so depending on the skills of the assessor pool, two different assessors could be a better approach.[100]

The utilities expressed universal agreement that a third-party, INPO-like structure that helps conduct assessments could be helpful (SDG&E, PG&E, SoCalGas). SCE suggested setting up a third-party structure that includes ongoing, facilitated working groups to promote learning, sharing, and networking to engender trust.[101] PG&E recommended establishing a Peer Utility Safety Culture Coalition to facilitate sharing confidential information between peer utilities to enable participating utilities to share lessons learned, noting

---

[91] INPO. (2007). Convention on Nuclear Safety Report: The role of the Institute of Nuclear Power Operations in supporting the United States commercial nuclear electric utility industry's focus on nuclear safety.

[92] INPO. (2007). Convention on Nuclear Safety Report: The role of the Institute of Nuclear Power Operations in supporting the United States commercial nuclear electric utility industry's focus on nuclear safety.

[93] National Academies. (2016). *Strengthening the Safety Culture of the Offshore Oil and Gas Industry*. Chapter 4: U.S. Offshore Safety Regulation Pertaining to Safety Culture.

[94] National Academies. (2016) *Strengthening the Safety Culture of the Offshore Oil and Gas Industry*. Chapter 4: U.S. Offshore Safety Regulation Pertaining to Safety Culture at 103-104.

[95] SCE October 4, 2022 comments at 10-11; Cal Advocates October 4, 2022 comments at 10.

[96] SCE October 4, 2022 comments at 11.

[97] See I.15-08-019 and I.19-06-014.

[98] Cal Advocates October 4, 2022 comments at 9-10.

[99] SoCalGas October 4, 2022 comments at 6.

[100] PG&E October 4, 2022 comments at 6.

[101] SCE August 15, 2022 comments at 11.

that like INPO, this group could also potentially conduct peer reviews during self-assessment years.[102] Cal Advocates agreed with the idea of developing a system for the IOUs to voluntarily self-report safety issues, and SBUA advocated for giving additional attention to developing non-punitive means of information sharing.[103] SCE and SoCalGas also suggested that the Commission engage with broader energy industry through industry forums and organizations.[104] Cal Advocates expressed support for the idea of having quarterly or biannual meetings with the IOUs to better understand safety culture challenges.[105] SoCalGas similarly recommended holding continued dialogues with utilities to gather feedback and proactively improve safety culture.[106]

Recommendation

SPD includes two recommendations below related to third-party entities and fostering ongoing collaboration based on material presented at public workshops throughout the course of this proceeding, input from parties, discussion with other safety regulators, and best practices observed in other industries.

Third-party Safety Culture Assessor
Currently, SPD does not recommend selecting a single assessor or evaluator to conduct all comprehensive safety culture assessments of the large energy utilities in California. Instead, SPD can develop standard selection and qualification criteria for safety culture assessors, who would be selected on a utility-by-utility basis. Since the Commission is relatively new to the safety culture learning journey, SPD does not desire to restrict the pool of potential assessors that could be qualified to conduct assessments. The Commission could allow but should not require the same assessor to conduct assessments of multiple utilities if that assessor is the most qualified candidate. Having a larger pool of contractors conducting assessments during the initial cycle will allow the Commission to better understand what a reasonable assessment should include and who could potentially serve as the preferred contractor(s) for assessments.

Utility Safety Culture Working Group
SPD recommends establishing a Utility Safety Culture Working Group to foster collaboration, serve as a catalyst for improvement, build trust, and vet best practices for safety culture improvement. To do so, SPD recommends the Commission authorize an independent third-party facilitator to convene the Working Group. This third-party facilitator would organize Utility Safety Culture Working Group meetings with Staff, the Joint Utilities, and other stakeholders to continue to refine the safety culture framework. Eventually, this group could evolve into a more formal organization or institute.

Initial work for the Utility Safety Culture Working Group could include:
- Developing industry-specific examples of the safety culture framework Traits.
- Developing focus areas for the annual improvement self-evaluation.
- Developing leading indicators for the annual improvement self-evaluation.

Evolving priorities for the Utility Safety Culture Working Group (or organization it grows into) may include:
- Reviewing and auditing the results of comprehensive assessments and verifying the accuracy of annual improvement self-evaluations.
- Assisting utilities in planning to address issues identified in the comprehensive assessments.
- Periodically reviewing and updating focus areas and indicators for the annual improvement self-evaluations based on ongoing research and development.

---

[102] PG&E August 15, 2022 comments at 7.

[103] Cal Advocates August 15, 2022 comments at 10-11; SBUA August 29, 2022 reply comments at 3.

[104] SCE August 15, 2022 comments at 10-11; SoCalGas August 15, 2022 comments at 8.

[105] Cal Advocates August 15, 2022 comments at 9.

[106] SoCalGas August 15, 2022 comments at 10.

- Periodically reviewing and updating the safety culture framework based on stakeholder feedback.
- Facilitating the sharing of best practices and collaboration between utilities and lessons learned from other industries.

Learning from the examples from the nuclear and offshore oil and gas industries, SPD recommends the Utility Safety Culture Working Group (and organization it may grow into) be independent from advocacy functions of the utilities and be led by a neutral party to maintain credibility and objectivity.

ATTACHMENT A

DRAFT SAFETY CULTURE FRAMEWORK FOR CALIFORNIA'S LARGE INVESTOR-OWNED UTILITIES

Overview
The proposed Draft Safety Culture Framework (framework) here sets forth an approach for building and maintaining a positive safety culture for the large natural gas and electric IOUs consistent with the goals for this proceeding. The draft framework is intended to describe the elements of a positive safety culture. The proposal is based on the normative framework developed by the U.S. Nuclear Regulatory Commission (U.S. NRC) and Institute for Nuclear Power Operations (INPO)[107] and adapted for California's IOUs. It consists of 10 traits, each with a set of attributes, and explanation of terms used.

It should be noted this framework is not a checklist of behaviors, but represents overarching principles that provide traits and attributes present in organizations with a healthy safety culture.[108] The U.S. NRC's framework is a useful starting point to build upon and reach consensus for a safety culture framework. The 10 Traits outlined below are not mutually exclusive (i.e., traits can overlap and may be interrelated), may not be comprehensive, and should not be viewed as exhaustive.

1   Explanation of Terms

Organizations have different structures and terms for organizational roles and positions. The terms defined below are in addition to those included in *Proposal 1: Defining Safety Culture* within the staff proposal. Each organization can determine how these terms apply to its unique organizational structure.

Organization: The collective group of all individuals, the reporting structure, and the procedures, policies, and practices that individuals use to set goals and make decisions, to accomplish tasks, and to implement and maintain a healthy utility safety culture.

Individuals: All people at all levels of the organization; individuals include all leaders, individual contributors, and contractors.

Leaders: Individuals who influence, coach, or lead others within the organization and determine the vision, goals, or objectives of their teams; leaders include executives, managers, supervisors, and others who influence individuals in the organization.

Executives: Corporate decision makers who are responsible for setting the long-term strategic goals for the organization; executives develop and implement corporate policies.

Managers: Individuals assigned to managerial positions who control, direct, guide, advise, set priorities, and monitor the performance of the organization; includes senior managers and supervisors.

Work Groups: Groups of individuals who work collaboratively to accomplish tasks; work groups may exist at any level of the organization.

Individual Contributors: Individuals who operate individually or as members of work groups to

---

[107] USNRC's NUREG-2165, Safety Culture Common Language. (INPO has also published this common language in INPO 12-012, "Traits of a Healthy Nuclear Safety Culture").
[108] IAEA "A harmonized Safety Culture Model," last revised May 5, 2020.

accomplish tasks; individual contributors may include leaders when leaders are acting in a nonsupervisory capacity or are accomplishing tasks as members of a work group.

Contractors: Individuals who accomplish work for but are not employees of the organization; including short- and long-term contractors and individuals who are not employed by the organization but occasionally perform work related to utility safety.

Independent Oversight Organizations: Groups that independently review the performance and direction of the organization.

Independent Third-Party Assessor: Independent third-party evaluator that a utility will contract to perform a comprehensive assessment of its safety culture.

2   Relationships Among Roles

The Figure below is a visualized graphical representation of the interrelationships among the terms defined above:
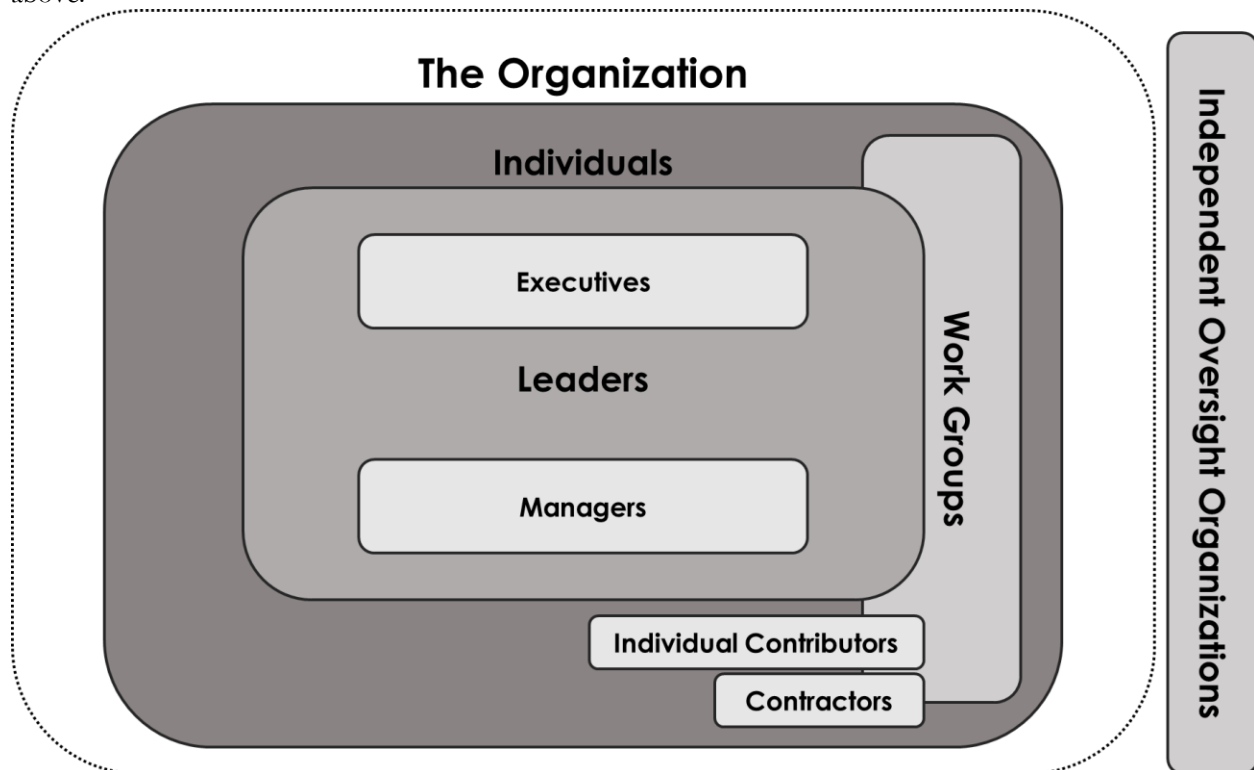
3   Traits, Attributes, Examples

1. **Leadership Safety Values and Actions (LA)**
    Leaders demonstrate a commitment to safety in their decisions and behaviors.

    LA.1 Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support utility safety.

LA.2 Field Presence: Leaders are commonly seen in in all areas of the organization, observing work, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly.

LA.3 Incentives, Consequences, and Rewards: Leaders ensure incentives, consequences, and rewards are aligned with utility safety policies and reinforce behaviors and outcomes that reflect safety as the overriding priority.

LA.4 Strategic Commitment to Safety: Leaders ensure utility priorities are aligned to reflect utility safety as the overriding priority.

LA.5 Management of Change[109]: Leaders use a systematic process for evaluating and implementing change so that utility safety remains the overriding priority.

LA.6 Roles, Responsibilities, and Authorities: Leaders ensure that roles, responsibilities, and authorities are clearly defined and understood to ensure utility safety.

LA.7 Constant Examination: Leaders ensure that utility safety is constantly scrutinized through a variety of monitoring techniques, including assessments of utility safety culture.

LA.8 Leader Behaviors: Leaders exhibit behaviors that set the standard for safety.

2. **Problem Identification and Resolution (PI)**
   Issues potentially impacting safety are systematically identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.

   PI.1 Identification: The organization implements a corrective action program with a low threshold for identifying minor and major issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.[110] Self-reporting is expected and valued by the organization.

   PI.2 Evaluation: The organization thoroughly evaluates problems to ensure that resolutions address causes and extent of conditions, commensurate with their safety significance.

   PI.3 Resolution: The organization takes effective corrective actions to address issues in a timely manner, commensurate with their safety significance.

   PI.4 Trending: The organization periodically analyzes information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues.

---

[109] Management of Change (MOC) refers to the approach used to ensure that changes do not inadvertently introduce new hazards or unknowingly increase risk of existing hazards. This includes changes to any aspect of operating the utility, i.e., technical, physical, procedural, operational, or organizational changes. For purposes of this document, and consistent with management system practices, we differentiate MOC from the term "Change Management." Change Management refers to one aspect of the MOC process – dealing with the people side of change, or changing people's behavior to bring them through a change (i.e., training, tools, communication) – while MOC is the entire life cycle of the change process, from identifying the need for a change, all the way through its implementation, monitoring and learning from the change experience.

[110] API 1173 defines Corrective Actions as the steps established to either correct nonconforming aspects of the Pipeline Safety Management System (PSMS) identified during an audit or evaluation, or actions taken to manage threats recognized during day-to-day activities.

3. **Personal Accountability (PA)**
   All individuals take personal responsibility for safety.

   PA.1 Standards: Individuals understand the importance of adherence to utility standards. All levels of the organization exercise accountability for shortfalls in meeting standards.

   PA.2 Job Ownership: Individuals understand and demonstrate personal responsibility for the behaviors and work practices that support utility safety.

   PA.3 Collaboration: Individuals and workgroups communicate and coordinate their activities within and across organizational boundaries to ensure utility safety is maintained.

4. **Work Processes (WP)**
   The process of planning and controlling work activities is implemented so that safety is maintained.

   WP.1 Work Management: The organization implements a process of planning, controlling, and executing work activities such that utility safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work.

   WP.2 Design Margins: The organization operates and maintains infrastructure within design standards. Margins are carefully guarded and changed only through a systematic and rigorous process.

   WP.3 Documentation: Documentation, including procedures, is complete, accurate, accessible, user-friendly, understandable, and current. Changes are tracked.

   WP.4 Procedure Adherence: Individuals follow processes, procedures, and work instructions.

5. **Continuous Learning (CL)**
   Opportunities to learn about ways to ensure safety are sought out and implemented.

   CL.1 Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.

   CL.2 Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices.

   CL.3 Benchmarking: The organization learns from other organizations to continuously improve knowledge, skills, and safety performance.

   CL.4 Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instil utility safety values.

6. **Environment for Raising Concerns (RC)**
   A safety-conscious work environment (SCWE) is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment, or discrimination.

RC.1 Safety-Conscious Work Environment Policy: The organization effectively implements a policy that supports individuals' rights and responsibilities to raise safety concerns, and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.

RC.2 Alternate Process for Raising Concerns: The organization effectively implements a process for raising and resolving concerns that is independent of line-management influence. Safety issues may be raised in confidence and are resolved in a timely and effective manner.

7. **Effective Safety Communication (CO)**
   Communications maintain a focus on safety.

   CO.1 Work Process Communications: Individuals incorporate safety communications in work activities.

   CO.2 Basis for Decisions: Leaders ensure that the basis for operational and organizational decisions is communicated in a timely manner.

   CO.3 Free Flow of Information: Individuals communicate openly and candidly, vertically (up and down) and horizontally (across the organization), as well with oversight, audit, and regulatory organizations.

   CO.4 Expectations: Leaders frequently communicate and reinforce the expectation that utility safety is the organization's overriding priority.

8. **Respectful Work Environment (WE)**
   Trust and respect permeate the organization.

   WE.1 Respect is Evident: Everyone is treated with dignity and respect.

   WE.2 Opinions are Valued: Individuals are encouraged to voice concerns, provide suggestions, and offer questions. Differing opinions are respected.

   WE.3 High Level of Trust: Trust is fostered among individuals and workgroups throughout the organization.

   WE.4 Conflict Resolution: Fair and objective methods are used to resolve conflict.

9. **Questioning Attitude (QA)**
   Individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.

   QA.1 Recognize Unique Risks: Individuals understand the unique risks associated with electric power and gas utility systems. Individuals understand that utility systems are complex and may fail in unforeseen ways with significant consequences.

   QA.2 Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding.

QA.3 Challenge Assumptions: Individuals challenge assumptions and offer opposing views when they think something is not correct.

QA.4 Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes.

10. **Decision making (DM)**
    Decisions that support or affect utility safety are systematic, rigorous, and thorough.

    DM.1 Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated as appropriate.

    DM.2 Conservative Bias: Individuals use decision making practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe to proceed, rather than unsafe in order to stop.

    DM.3 Accountability for Decisions: Single-point accountability is maintained for utility safety decisions.