



## California Public Utilities Commission: Safety Intervenors and Effective Safety Management

### Key Findings:

- The safety management system framework is appropriate for CPUC regulation of energy utilities, but it may be difficult for the CPUC to articulate how a safety advocate will fit into such a framework as it does not yet have a safety management system in place.
- A safety advocate focused primarily on utility rate cases may miss essential safety risk management requirements, including that of ensuring utilities effectively identify safety hazards.
- Existing safety staff have identified gaps in utility hazard identification, but the CPUC has no formal means by which this information may inform CPUC proceedings.
- The presence of an in-house safety advocate in CPUC proceedings may have benefits, but the unit could be an organizational silo, and so its effectiveness in improving safety depends on how it interacts with other units within the Safety and Enforcement Division—none of whose roles have yet been sufficiently articulated.

### Key Questions to Consider:

1. *Would the CPUC commissioners remain accountable for oversight of utility safety if safety advocacy responsibility is given to an intervenor?*
2. *What would the roles of the CPUC's Safety and Enforcement Division and Risk Assessment Unit be with the introduction of a Safety Advocate?*

### Additional Question to Consider:

3. *Does the CPUC have weaknesses in hazard identification, and how could those gaps be addressed?*

4. *Is there a problem with having safety advocate staff who do not perform hazard identification activities such as audits, inspections, and accident investigations? How could this problem be rectified?*
5. *Are the safety risk management and safety assurance activities of SED, the Risk Assessment Unit, Policy and Planning Division, and the proposed Safety Advocate sufficiently well-defined?*
6. *What measures would be necessary to preserve the independence of a safety intervenor?*
7. *Should CPUC safety advocacy efforts focus primarily on the rate case, or are there other types of proceedings that are earlier in the safety risk management process where safety advocacy could also be productive?*
8. *As a newly formed safety advocate stumbles through its process of initial hires, where should a safety advocate focus in rate case intervention: scoping? record development? briefing? How would these activities tie into its safety management responsibilities?*

### **Who Fights for Safety at the California Public Utilities Commission?**

The Governor, in the 2016 Spring Finance Letter (SFL),<sup>1</sup> requested eleven positions to create a new in-house safety advocate at the California Public Utilities Commission (CPUC)—modeled on the Office of Ratepayer Advocates—to be named the Division of Safety Analysis (hereto referred as “Safety Advocate”). The rationale is that the CPUC has had a difficult time recruiting parties to intervene in CPUC proceedings to advocate for safety, and this organizational unit would fill that gap.

Proposals of this type have been criticized in the past for a number of reasons, some of which are outlined in **Appendix 1**. This document seeks to examine the concept of a safety intervenor from the safety management system (SMS) paradigm. SMS has been used in a number of industries—perhaps most extensively (by a regulator) by the Federal Aviation Administration (FAA)—to prevent organizational accidents in complex, high-consequence industries, and it has been identified by the CPUC as an appropriate model for safety oversight of regulated energy utilities. Through this lens the Committee and Subcommittee may determine whether the concept of a safety intervenor can address the Legislature’s safety concerns with the CPUC and may request clarifications or suggest modifications or alternatives.

### **Safety Advocacy in the CPUC Regulatory Process**

*In summary*

- *Because the CPUC sets rates for utilities on an individual basis, safety needs to be addressed in a large number of CPUC proceedings.*
- *In adjudicatory and ratesetting proceedings, it is appropriate for a separation between CPUC staff that advocates for safety and staff that advises the ALJ and commissioner, but such a separation may occur on an ad hoc basis and need not require institutional separation.*

<sup>1</sup> SFL, [http://web1a.esd.dof.ca.gov/Documents/bcp/1617/FY1617\\_ORG8660\\_BCP796.pdf](http://web1a.esd.dof.ca.gov/Documents/bcp/1617/FY1617_ORG8660_BCP796.pdf)

What distinguishes rate-regulated public utilities from traditional businesses is not that government regulators set their rates. Government ratesetting occurs for services in many industries, including transportation, insurance, and healthcare. For public utilities, the difference is that government regulators set rates not for the entire industry but for individual companies. This *individualized ratesetting* has in turn led individualized safety regulation. California’s state-regulated energy utilities conform to largely unchanging industry-wide standards, but each utility—through decisions, resolutions, and settlement agreements approved by the CPUC—are subject to different requirements based on its service territory and operating history. Additionally, CPUC-regulated energy utilities commit to making safety investments in their rate cases in exchange for the money to fund them. The longstanding paradigm of individualized ratemaking and the CPUC’s historical tolerance of entertaining individual utility safety-related proposals and settlements have led the CPUC’s oversight of safety to be no less complicated than the operation of those utilities themselves.

It was this intertwining of safety and ratesetting that the Independent Review Panel into the San Bruno Explosion and Fire identified in its report, recommending that, since the utility’s proposals in rate cases did not (and could not) separate cost issues from safety issues, the CPUC’s regulatory framework should not do so either.<sup>2</sup>

As the CPUC’s decisions are made through a quasi-judicial process, often involving hearings to determine facts and considerations of due process, administrative law requires an “ethical wall” between staff that takes positions in proceedings and the agency decisionmakers. This requirement stems from the prohibition of *ex parte* discussions with the decisionmaker in court cases. This ethical wall effectively creates two classes of staff for any particular proceeding—one that advocates and is subject to *ex parte* restrictions, and one that provides counsel to commissioners.

#### **Box 1: SED Safety Advocacy**

SED advocacy in safety-related rulemakings is occasional but not uncommon, and has been seen in the wildfire safety rulemaking (R.08-11-005/R.15-05-005) and a recent overhead line construction rulemaking (R.14-08-012), and has occasionally led to bizarre results. In one case, during a dispute over whether or not Pacific Gas and Electric Company (PG&E) should be allowed to restore the pressure on a natural gas pipeline running through the City of San Carlos, SED—serving in an advisory capacity—recommended the pressure be increased,<sup>4</sup> while an SED consultant—working in an advocacy capacity—recommended the pressure remain at a reduced level.<sup>5</sup>

Administrative law does not require an institutional separation between these two agency functions but allows it on an *ad hoc*, case-by-case basis,<sup>3</sup> and the CPUC’s Safety and Enforcement Division (SED) has in the last decade often served in rulemakings in an advocacy role (**Box 1**). This “ethical wall” requirement is limited, as the separation of advocacy and advisory staff applies only to adjudicatory cases. As CPUC ratesetting proceedings have adjudicatory elements such as hearings, such an ethical wall is appropriate for those cases as well. In rulemakings, where there are no *ex parte* communication restrictions, there is no legal requirement to separate advisory and advocacy staff.

SED has been notably absent in those proceedings in which a utility has requested rate increases for infrastructure improvements. The Governor’s SFL proposal focuses on these ratesetting cases and would put this new safety advocate in the position of evaluating utility spending proposals for their safety merit.

<sup>2</sup> “Report of the Independent Review Panel San Bruno Explosion,” Revised Copy, June 24, 2011, p. 103. <http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=4851>

<sup>3</sup> *Morongo Band of Mission Indians v State Water Resources Control Board*, 45 Cal.4<sup>th</sup> 731 (2009).

<sup>4</sup> “Safety and Enforcement Division’s Report on Its Investigation of PG&E’s Transmission Line 147,” November 14, 2013. <https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=290806>

<sup>5</sup> “Safety and Enforcement Division’s Report and Testimony of Margaret Felts,” November 18, 2013. <https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=290864>

To evaluate the value of this new function safety advocacy function we should see where it fits into a safety management system scheme.

### Safety Management Systems: A Formalized, Proactive Approach to System Safety

*In summary*

- *The Safety Management System (SMS) approach is appropriate in industries involving high complexity and high consequences for failure, such as energy utilities.*
- *The CPUC already performs some safety risk management and safety assurance process elements, but it has not yet done so in a coordinated fashion.*

The safety management system (SMS) concept began not as a theory but as a set of best practices meant to address a number of problems that had emerged from the complexity of modern industrial systems. Principal among these problems are that:

1. Humans cause 80% of accidents, but that organizations influence human behavior and the organizations themselves needed to be a focus of safety efforts.<sup>6</sup>
2. Industrial systems are too complex for traditional, prescriptive standards and regulation and instead require a performance-based approach.
3. The consequences of infrequent accidents have become too intolerable to accept after-the-fact accident investigations as an adequate tool to improve safety.

SMS requirements exist for a number of industries, including offshore drilling,<sup>7</sup> international shipping,<sup>8</sup> rail transit,<sup>9</sup> and commercial aviation.<sup>10</sup> Different industries use different versions of safety management systems. The CPUC, in its 2015 Safety Action Plan<sup>11</sup> and its Draft Strategic Directive on safety<sup>12</sup> use the SMS approach adopted by FAA and the International Civil Aviation Organization (ICAO), which consists of the four “pillars” of *safety policy*, *safety risk management*, *safety assurance*, and *safety promotion*. A description of these concepts may be seen in **Box 2**.<sup>13</sup>

<sup>6</sup> International Civil Aviation Organization (ICAO), *Doc 9859: Safety Management Manual*, p. 2-1.

<http://www.icao.int/safety/SafetyManagement/Documents/Doc.9859.3rd%20Edition.alltext.en.pdf>

<sup>7</sup> <http://www.bsee.gov/Regulations-and-Guidance/Safety-and-Environmental-Management-Systems---SEMS/Safety-and-Environmental-Management-Systems---SEMS/>

<sup>8</sup> “Safety Management,” International Maritime Organization,

<http://www.imo.org/OurWork/HumanElement/SafetyManagement/Pages/Default.aspx>

<sup>9</sup> <https://www.fta.dot.gov/regulations-and-guidance/safety/safety-management-systems-sms>

<sup>10</sup> ICAO, *Doc 9859*.

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[http://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/SafetyActionPlanRegulatoryStrategyFeb12FINAL.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/SafetyActionPlanRegulatoryStrategyFeb12FINAL.pdf)

<sup>12</sup>

[http://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/Content/Transparency/Commissioner\\_Meetings/151021\\_DRAFTSDSafety101515.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Transparency/Commissioner_Meetings/151021_DRAFTSDSafety101515.pdf)

<sup>13</sup> Adapted from ICAO Doc 9859 and Federal Aviation Administration Order VS 8000.367A, “Aviation Safety (AVS) Safety Management System Requirements” November 30, 2012.

## **Box 2: Four Pillars of the Safety Management System**

### **1. Safety Policy**

- Provides management and personnel with policy direction, written procedures or rules, management controls, and corrective action processes to maintain safe operations.
- Establishes senior management’s commitment to continual improvement through measurable objectives and to provide sufficient resources to implement safety actions.
- Establishes roles, responsibilities, and accountabilities in the organizations safety performance.
- Articulates an enforcement policy.

### **2. Safety Risk Management** consists of five process elements:

- *System description*: establish an understanding of the system sufficient to identify hazards.
- *Hazard identification*: through a combination of reactive, proactive, and predictive means, identify safety hazards.
- *Analyze safety risk*: through quantitative and/or qualitative means, determine the severity and likelihood of the manifestation of hazards.
- *Assess safety risk*: compare the safety risk of identified hazards with safety performance targets and determine the acceptability of the risk.
- *Control safety risk*: implement risk controls to eliminate or mitigate safety risks.

### **3. Safety Assurance** determines the effectiveness of risk controls and incorporates:

- *Data Collection*: Collect information from reporting mechanisms, incident and accident investigations, audits, etc.
- *Data Analysis*: Identify relevant questions, determine trends, compare data with industry benchmarks, and identify new hazards.
- *Safety Performance Assessment*: Evaluate the safety performance of risk controls to determine their effectiveness.
- *Corrective Action*: Ensure compliance with existing risk controls or, if necessary, conduct safety risk management to develop new risk controls.

### **4. Safety Promotion**

- Promote a positive safety culture by opening lines of safety communication.
- Incentivize participation in safety management through all levels of the organization.
- Ensure appropriate safety training and education opportunities.
- Manage safety knowledge so that it may be acquired in a deliberate, organized fashion and accessible to internal and external stakeholders.

Safety risk management and safety assurance are the two process-oriented SMS pillars. The workflow, seen in **Figure 1**,<sup>14</sup> can be imagined as two related processes.

1. In the *safety risk management* phase, hazard information is taken to develop mitigation measures intended to prevent safety incidents.
2. In the *safety assurance* phase, the mitigation measures are observed to see if they are effective. If not, the safety risk management phase begins again to develop new mitigations.

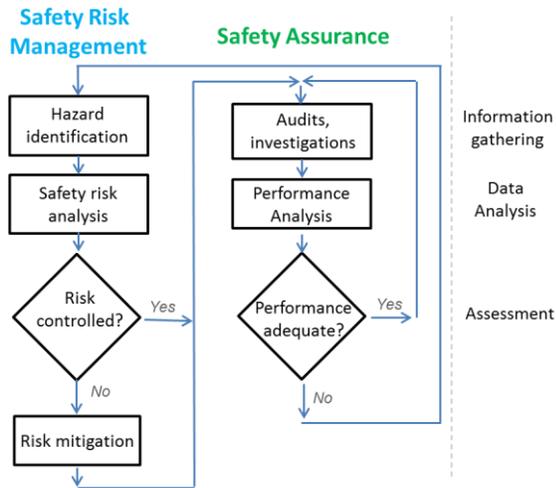
The process elements of SMS—the safety risk management/safety assurance workflow—are conceptually no more difficult than that.

The CPUC has much of the necessary safety risk assessment/safety assurance elements in place. For instance, the CPUC has instituted elements of risk assessment in energy utility rate cases. Gas engineers in the Safety and Enforcement Division have aggressively pursued safety assurance activities in PG&E’s gas transmission pipeline testing and replacement plans. Less well defined is:

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<sup>14</sup> Adapted from Don Arendt, “Culture, Risk Management, and SMS,” presented to the Pipeline and Hazardous Materials Safety Administration, August 26, 2013, minute 50:35. <https://youtu.be/4HzxDvTengM?t=3035>

**Figure 1: Safety Risk Management/  
Safety Assurance Workflow**



1. the process by which the safety risk management and safety assurance activities interact (the arrows in the workflow), and
2. The actors at the CPUC responsible for these functions.

Essentially, these questions ask how the audits, inspections, and accident investigations of SED (safety assurance activities) influence CPUC rulemakings and rate proceedings (safety risk management activities), and vice versa.

### Gaps in the CPUC’s Management of Safety

In summary

- A Safety Advocate could not alone address the CPUC’s hazard identification gap but could, with clear direction, facilitate connecting the hazards identified by SED with CPUC proceedings.
- The CPUC has yet to clearly articulate the SMS role of the proposed Safety Advocate, nor has it done so for its existing safety units.
- As the rate case process is only one element of the safety risk management/safety assurance workflow, a Safety Advocate may wish not to focus all its efforts in rate cases.

Despite improvements in the CPUC’s safety posture, significant weaknesses remain unaddressed even with a Safety Advocate as envisioned by the SFL. These include:

1. Failure to address fundamental safety risk management element of hazard identification
2. Insufficiently articulated safety accountabilities, which could be exacerbated the presence of yet another safety entity
3. Rate case process may be too late in the safety risk management process to merit full advocacy focus

These weaknesses are fundamentally linked within the SMS framework.

Failure to address fundamental safety risk management element of hazard identification

ICAO recommends that, before implementing a safety program, a regulator should perform a gap analysis.<sup>15</sup> The Governor’s SFL identifies one gap—that there is no intervenor “to develop a record

<sup>15</sup> ICAO, *Doc 9859*, p. 4-11.

through testimony and analysis to highlight safety gaps.”<sup>16</sup> The CPUC has yet to present, however, an analysis of its other safety gaps.

One of these gaps is the safety risk management element of *hazard identification*. Thus far, the CPUC’s safety in ratemaking proceedings (R.13-11-006, A.15-05-002 *et al.*) have assumed effective hazard identification processes at the utilities. Were that the case, however, the three utility failures highlighted by the Governor’s SFL (San Bruno explosion, Long Beach outage, Aliso Canyon leak) may not have occurred.

Just because the CPUC as an organization didn’t recognize these hazards doesn’t mean that individuals within SED did not. SED investigators recognized years before the Long Beach outage the problem of cable splice failures in electrical conductors. As a result of a 2011 downed line electrocution in San Bernardino, SED and Edison entered into a settlement agreement that required Edison to identify splices in primary conductors and determine where failure was likely.<sup>17</sup> Additionally, SED—acting in an advocacy role—proposed a number of new rules in a 2014 rulemaking to modify electric safety rules, including rules requiring utilities to perform trend analyses on equipment failures and fault currents.<sup>18</sup> SED’s proposal was deemed to be out of scope<sup>19</sup> and has yet to be seen again. These are instances in which SED has identified gaps in utility hazard identification during its safety assurance responsibilities, but as the CPUC has no formal means by which this information flows back into the CPUC’s safety risk management processes, the organization has not benefited from it.

Hazard identification is not the exclusive purview of SED personnel. The CPUC can also promote effective hazard identification by utility employees by requiring employee safety reporting programs and by requiring procedures to internally disseminate lessons learned from accidents and near-misses.

As proposed, the Safety Advocate may not help address this hazard identification gap. The proposed unit has the disadvantage of being isolated from the CPUC’s safety assurance activities. The proposal would allocate four utility engineers to the unit, but these engineers—unlike those in SED—may not have any contact with utility infrastructure and thus be less likely than SED engineers to provide needed input into CPUC proceedings. As such, the CPUC may drift away from the Independent Review Panel’s recommendation to “consider a more proactive role for the safety staff in utility rate filings” and from the panel’s admonition that “the silos between the various disciplines in the agency must be dismantled.”<sup>20</sup>

*Hazard identification is a prerequisite to the safety risk management process. Any incorrect differentiation between hazards and safety risks can be a source of confusion. A clear understanding of hazards and their related consequences is essential to the implementation of sound safety risk management.*

- ICAO Safety Management Manual, Doc 9859, 2013

After San Bruno, many at the CPUC shared a mindset that safety was the utility’s responsibility, not the CPUC’s. In the past several years this attitude has changed. The Legislature might wish to emphasize to the CPUC that it also recognize its important role in hazard identification and does not assume that the utilities will adequately carry out that responsibility without oversight.

<sup>16</sup> SFL, p. 4.

<sup>17</sup> D.14-08-009, <http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&DocID=102368219>

<sup>18</sup> “Prehearing conference statement and opening comments of the Safety and Enforcement Division,” R.14-08-012, October 20, 2014, p. 5. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M132/K446/132446036.PDF>

<sup>19</sup> “Assigned commissioner’s scoping memo and ruling,” R.14-08-012, November 19, 2014.

<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M141/K888/141888434.PDF>

<sup>20</sup> IRP, p. 103.

*Insufficiently articulated safety accountabilities, which could be exacerbated the presence of yet another safety entity*

If commissioners remain ultimately responsible for safety at the CPUC, that should be demonstrable through a clear chart of responsibilities and accountabilities.

A good place to start would be to determine the roles of SED engineers. The SFL states that “their role is to enforce and investigate.”<sup>21</sup> The CPUC might wish to better define their role in an SMS framework and how that role interacts with that of the SFL’s proposed Safety Advocate.

The Legislature raised the larger issue of accountability in its direction to the CPUC to develop a zero based budget.<sup>22</sup> The Legislative Analyst’s Office would comment that “[w]hile the report includes a description of current activities and resources, it lacks a comprehensive analysis of these activities and resources.”<sup>23</sup>

Such analysis is particularly relevant given that this proposal could create a new silo at the CPUC. Ed O’Neill, appointed by the Governor to report findings and recommendations on how to modernize the CPUC, found that “the agency will never achieve anything remotely approaching its potential unless existing barriers to effective information flow and constructive dialogue within the agency are addressed and remedied.”<sup>24</sup>

**Safety responsibility:** the obligation to carry forward an assigned safety related task to its successful conclusion. With responsibility goes authority to direct and take the necessary action to ensure success.

**Safety accountability:** the obligation to demonstrate the task achievement and take responsibility for the safety performance in accordance with agreed expectations. Accountability is the obligation to answer for an action.<sup>25</sup>

Ambiguity can lead to internal conflict, and the CPUC is no stranger to turf wars. Though SED has largely avoided these, the introduction of the Risk Assessment Unit in 2011 led to significant tension between it and the Gas Safety and Reliability Branch—a tension that took years to dissipate. The CPUC might wish to clarify the roles within SED, of the Safety Advocate, and of the Policy and Planning Division in order to avoid unnecessary confusion. In doing so, it might wish to describe these responsibilities in personnel duty statements.

Examples of accountability outlines for these CPUC units—both in list and chart forms—can be seen in **Appendix 2**. Additionally, JO 1000.37A<sup>26</sup> describes the SMS responsibilities of individuals within FAA’s Air Traffic Organization and can be used as a model.

As the agency is under criminal investigation over communications that appear to demonstrate an overly-cozy relationship between CPUC commissioners and management and executives of the utilities it

<sup>21</sup> SFL, p. 4.

<sup>22</sup> Public Utilities Code Section 318, codified in SB 96 (Chapter 356, Statutes of 2013).

[http://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?sectionNum=318.&lawCode=PUC](http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=318.&lawCode=PUC)

<sup>23</sup> Legislative Analyst’s Office, “2015-16 State Budget: Natural Resources and Environmental Protection.” February 19, 2015. <http://www.lao.ca.gov/reports/2015/budget/resources-environmental-protection/Res-Budget-Analysis-021915.pdf>

<sup>24</sup> Edward W. O’Neill, “Report on Key Findings from CPUC Modernization and Reform Project,” June 22, 2015, p. 7. [https://www.opr.ca.gov/docs/062215\\_Key\\_Findings\\_Mod\\_Reform\\_Project.pdf](https://www.opr.ca.gov/docs/062215_Key_Findings_Mod_Reform_Project.pdf)

<sup>25</sup> [http://www.skybrary.aero/index.php/Safety\\_Accountabilities\\_and\\_Responsibilities](http://www.skybrary.aero/index.php/Safety_Accountabilities_and_Responsibilities)

<sup>26</sup> [http://www.faa.gov/documentLibrary/media/Order/1000-37A\\_ATO\\_Safety\\_Management\\_System\\_508CFINAL.pdf](http://www.faa.gov/documentLibrary/media/Order/1000-37A_ATO_Safety_Management_System_508CFINAL.pdf)

regulates, it may not be appropriate for the director of this advocacy unit to report to the CPUC's executive director. Regulated utilities would have a strong interest in a Safety Advocate's recommendations on whether or not to approve rate case expenditures, and so the position may warrant some level of independence like that of the Office of Ratepayer Advocates.

*Rate case process may be too late in the safety risk management process to merit advocacy focus*

Focusing the Safety Advocate's attention on the rate case—the tail end of the utility's planning process—may minimize the value of the Safety Advocate's participation or worse, turn the Safety Advocate into little more than a proponent for utility rate increase proposals.

Utility business decisions are multi-dimensional. They involve value choices that are disguised in rate case applications in ways that cannot be revealed simply by designating a safety intervenor to pump more information into the proceeding record. At the simplest level,

**Box 3: What's in a Name?**

If the proposed Office of Safety Analysis is where safety is *analyzed*, then what does that imply for the Safety and Enforcement Division? If the new office will be participating in the decision-making, or *assessment*, process in proceedings, what does the Risk Assessment Unit do?

The terms *analysis* and *assessment*—just like *risk management* and *assurance*—have specific meanings in SMS. Are the functions of the CPUC's organizational units so well defined?

utilities have to balance dependable shareholder returns, low rates for customers, safe service, reliable service, and environmental stewardship. These goals do not always conflict with each other, but the utility must nonetheless make value choices determining which goals to allocate more attention, talent, and capital. Rate case applications disguise these value choices because they are fundamentally requests by utilities to increase rates to implement value choices that the utility has already made. As such, these applications are designed to create a choice along a single dimension—equating more safety, reliability, and environmental promotion with higher rates—and necessarily ignore options that the utility has decided not to pursue. An example the value choices the rate case process misses is found in **Box 4**.<sup>27</sup>

The reduction of choice to a single dimension can also lead to conflict. This conflict can be seen in the opening brief of the California Coalition of Utility Employees during PG&E's 2014 General Rate Case in responding to the Office of Ratepayer Advocates (DRA):

*“DRA's proposals regularly cut funding for safety and reliability projects. Therefore, it was obligated to address the potential safety effects of its proposals. Yet DRA admits that it utterly failed to consider the impact on safety of its proposals. The Commission should emphatically reject DRA's stunning disregard for the safety of PG&E's customers and employees.”*<sup>28</sup>

<sup>27</sup> 2009 Victorian Bushfires Royal Commission Final Report, Vol 2, Chapter 4, <http://www.royalcommission.vic.gov.au/Commission-Reports/Final-Report/Volume-2/Chapters/Electricity-Caused-Fire.html>

<sup>28</sup> “Opening Brief of the Coalition of California Utility Employees,” A.12-11-009, September 6, 2013, p. 5. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M077/K299/77299841.PDF>

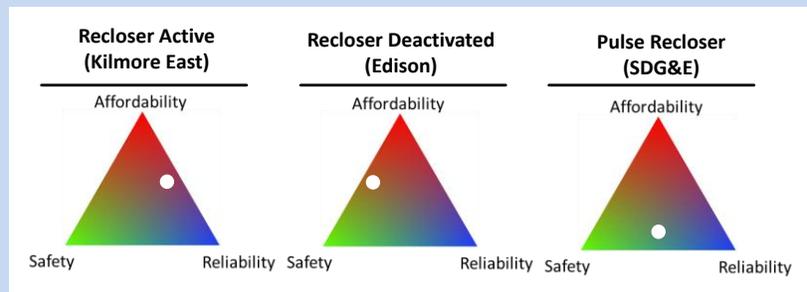
#### Box 4: Safety Decisionmaking Example – Reclosers

Reclosers are devices designed to improve electric reliability by screening out transient faults on electric lines. When a utility detects a fault at a substation, utility operators do not immediately know if the fault was *transient*, such as that caused by a palm frond contacting electric lines in its descent to the ground, or if it is *permanent*, like that caused by a downed line. Reclosers re-energize the line a number of times to see if the fault was indeed transient, as the majority of faults are. If the fault no longer exists, the power is restored without further action. If after several attempts the fault remains, a utility worker would need to be sent out to investigate and restore power.

Despite the reliability benefits, reclosers have been implicated in deadly fires, including the 2009 Kilmore East Fire in Victoria, Australia that claimed 119 lives. The Royal Commission charged with investigating found that the action of the recloser made the fire 18 times more likely:

*“Because of the operation of the [automatic recloser], plasma at a temperature of 5,000°C was ejected on four occasions—at the time of the initial fault and then on each of the three recloses—for a total of 3.6 seconds instead of for 0.2 seconds, as would have been the case if the reclose function had been suppressed.”<sup>27</sup>*

To manage this risk, utilities such as San Diego Gas and Electric Company have installed “pulse reclosers” that do not send the full current back through the line to test for transient faults but use advanced signal detection, greatly reducing the amount of power running through the line. Such technology, however, comes with cost. Alternatively, a utility could simply disable reclosers manually during high fire seasons, such as Southern California Edison does. This option saves on cost but at the expense of reliability. In this example a utility can’t have safety, reliability, *and* affordability, but it can have two of the three. The three options can be seen in the following “production triangles”:



In the three options above, only the one in which a utility requested a rate increase (“Pulse Recloser”) would be highlighted in a rate case. The most dangerous situation (“Recloser Active”)—the one in which the utility failed to recognize the safety hazard—would not be part of the proceeding.

(NOTE: This is a simplified example designed to be illustrative. Recloser technology is more varied and Edison’s and SDG&E’s policies more nuanced than the above discussion would suggest.)

During the CPUC’s September 2015 Safety En Banc, Tom Long of TURN suggested that conflicts between safety improvements and low rates were constructed, not inherent and that in rate cases utilities are “creating a completely false dichotomy,” and that “bigger revenue requirements do not necessarily lead to more safety.”<sup>29</sup>

Rate cases only really address the bottom left two elements of the safety risk management/safety assurance workflow in **Figure 1** (“Risk Controlled?” and “Risk Mitigation”) and do not address hazard identification and risk analysis. These more fundamental elements of risk management are, however, addressed in rulemakings. At any one time the CPUC has a smattering of safety-focused rulemakings

<sup>29</sup> Testimony of Tom Long, CPUC Safety En Banc, September 24, 2015. Minute 00:42:40. [http://www.adminmonitor.com/ca/cpuc/en\\_banc/20150924/2/](http://www.adminmonitor.com/ca/cpuc/en_banc/20150924/2/)

open, presently including one intended to prevent power line-ignited wildfires (R.15-05-005) and another set to determine the way in which safety will be handled in all future rate cases (A.15-05-002 *et al*).<sup>30</sup>

While a newly-formed Safety Advocate has a place in rate cases, one should not expect it to be immediately effective. Entering facts into the proceeding record is not a substitute for challenging the value choices that underlie the utility's application, and those choices are difficult to access in rate cases. If the Safety Advocate can only weigh in on questions of how much a utility should spend, the unit should not be considered successful.

### **Safety Advocacy Role Remains Unclear Without a Safety Management System**

It is difficult to know whether the Safety Advocate functions are appropriate in the CPUC's SMS if the CPUC has not yet developed one. Under an SMS, the safety risk management/safety assurance workflow, such as that in **Figure 1**, would be a guide for how proceeding scoping and proceeding orders could be adapted to incorporate SMS principles.

For instance, current CPUC processes do not formally support the connections (in **Figure 1**, the arrows) between safety risk management and safety assurance, and fundamental questions remain:

- *How should safety assurance activities—undertaken either by the utility or by SED—be incorporated in a proceeding's scope?*
- *What types of monitoring activities should be required of utilities and of SED in ordering paragraphs of decisions?*
- *How does SED/Safety Advocate determine when a safety risk is insufficiently controlled and new rulemaking is necessary?*

The CPUC might not have answers to these questions, as they are not simple. The FAA—generally considered to be ahead of most regulators in its safety management evolution—has only recently begun a risk-based rulemaking initiative to try to address these issues. The Subcommittee might wish to know to what extent the CPUC is following such efforts so that it does not have to reinvent the wheel.

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Tony Marino

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<sup>30</sup> That the discussions in proceedings to determine how all future rate cases will consider safety have been dominated by utilities and ratepayer advocates may be a cause of concern for the Subcommittee.

## Appendix 1: Concerns Raised Against an In-House Safety Advocate

- *The CPUC delegates its safety advocacy responsibility with designated safety advocacy staff.* As Paul Schulman and Karlene Roberts at UC Berkeley’s Center for Catastrophic Risk Management noted in their report to the CPUC, “The CPUC itself should be the intervenor for safety in all its proceedings, based on its knowledge, access to information and competency as well as institutional values and mission,” and that “the safety intervenor proposal suggests that the CPUC will instead be a neutral bystander in debates concerning safety.”<sup>31</sup> Senator Hill raised a similar concern in a January 2015 letter.<sup>32</sup> Commissioners are not neutral arbiters of a judicial record but stewards of the public interest.
- *Rate case intervention is too late in the safety management process.* The rate case process was not a contributing cause for the explosion in San Bruno. Instead, PG&E management “seemed generally unaware of the quality of its pipeline integrity efforts,” even when interviewed after the explosion.<sup>33</sup> If a utility’s process of hazard identification is faulty, the deficiency must be caught well before the utility’s rate case submission, or it likely won’t be identified at all. The Utility Project, a citizen group that has monitored equipment failures in PG&E’s distribution system, has suggested enlisting an Independent Advisory Panel task force to focus on these hazards.<sup>34</sup>
- *You can’t separate safety from cost considerations.* There is an inherent tradeoff between risk reduction and cost that must be recognized. A safety-only intervenor focused solely on safety operates in a spectrum between bolstering the case for bloated utility rate requests and irrelevancy. As Tom Long of the Utility Reform Network has noted, “an intervenor in rate cases who advocates solely for increased safety without considering cost issues certainly can offer a useful perspective, but ultimately provides limited assistance to the Commission.”<sup>35</sup>
- *Safety advocacy should not be housed within the CPUC.* Revelations of coziness and even collusion between CPUC commissioner and management staff with regulated utilities have demonstrated a longstanding failure of the CPUC to maintain the necessary independence. A safety advocate should not be housed under the Commission’s roof. The City of San Bruno has recommended that the CPUC order the utilities to fund an external safety intervenor.<sup>36</sup>
- *Gas and electric safety regulation should not remain with the CPUC.* National Transportation Safety Board vice chair Christopher Hart raised the question of whether or not one organization should be both a rate regulator and a safety regulator, or whether the two roles posed an untenable conflict.<sup>37</sup> IRP floated the idea that natural gas pipeline safety oversight could be given to Office of the State Fire Marshall.<sup>38</sup>

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<sup>31</sup> “Report on the Safety Management System Implementation at the California Public Utilities Commission,” February 17, 2016, p. 23.

[http://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/Content/Transparency/Commissioner\\_Meetings/CPUC%20SMS%20Report%20Presentation%20and%20Report.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Transparency/Commissioner_Meetings/CPUC%20SMS%20Report%20Presentation%20and%20Report.pdf)

<sup>32</sup> January 29, 2015.

<sup>33</sup> IRP p. 53.

<sup>34</sup> <http://www.cpuc.ca.gov/sfi/>

<sup>35</sup> CPUC Safety En Banc, September 24, 2015. [http://www.adminmonitor.com/ca/cpuc/en\\_banc/20150924/](http://www.adminmonitor.com/ca/cpuc/en_banc/20150924/)

<sup>36</sup> Brief, May 6, 2013, I.12-01-007 (San Bruno OII).

<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M065/K394/65394256.PDF>

<sup>37</sup> Concurrence of Vice Chairman Hart, National Transportation Safety Board. 2011. *Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire, San Bruno, California, September 9, 2010* .

## **Appendix 2: Sample Safety Management System Responsibilities for Safety and Enforcement Division, Office of Safety Advocates, and Selected Others:**

### **Commissioners**

- Demonstrate to public an effective safety posture
- Set safety policy objectives
- Set director performance objectives
- Establish and maintain a positive safety culture throughout the CPUC
- Align performance systems with SMS initiatives
- Set and require safety goals in proceeding scopes
- Determine risk tolerances through CPUC proceedings
- Advocate for sufficient staff and resources to meet safety objectives

### **Director, Safety and Enforcement Division**

- With Legal Division, propose utility sanctions
- Evaluate and report on SED performance
- Evaluate resource needs
- Develop SED strategic plan
- Determine SED priorities

### **Director, Office of Safety Advocacy**

- With Gas/Electric Branches, propose safety rulemakings
- Advocate the safety perspective in proceedings
- Hold utilities to best practices in safety risk assessment and safety assurance in proceedings
- With Risk Assessment Unit, identify and propose utility safety assurance activities in Commission decisions
- With Gas/Electric Branches, propose scope refinements in proceedings

### **Director, Policy and Planning Division**

- With Office of Safety Advocates, propose SMS improvements
- With Risk Assessment Unit, analyze and report on emerging policy issues
- With Office of Safety Advocates and Office of Utility Safety and Reliability, develop lectures and events to improve CPUC safety culture

### **Deputy Director, Office of Utility Safety and Reliability**

- Maintain up-to-date safety assurance guidance documents for staff
- Ensure sufficient training opportunities for staff
- With Office of Safety Advocates, develop rulemaking proposals to address concerns raised by gas and electric inspection/investigation sections.
- With gas and electric inspection/investigation sections, propose sanctions for safety violations to SED Director
- Develop monitoring programs for identified risks, non-compliances

**Program Manager, Gas Safety and Reliability Branch**

- With Risk Assessment Unit, assess concerns, violations raised by Gas Engineering and Compliance Section and Gas Regional Sections
- With Gas Engineering and Compliance Section, Gas Regional Sections, and Risk Assessment Unit, develop monitoring protocols for identified risks
- With IT, maintain databases to track identified hazards

**Program Manager, Electric Safety and Reliability Branch**

- With Risk Assessment Unit, assess concerns, violations raised by Electric and Communication Facility Safety Section and Electric Generation Safety and Reliability Section
- With Electric and Communication Facility Safety Section, Electric Generation Safety and Reliability Section, and Risk Assessment Unit, develop monitoring protocols for identified risks. With IT, maintain databases to track identified hazards

**Supervisor, Risk Assessment Section**

- With Gas Engineering and Compliance Section, Gas Regional Sections, Electric and Communication Facility Safety Section, and Electric Generation Safety and Reliability Section, analyze utility and industry safety trends
- With Gas Engineering and Compliance Section, Gas Regional Sections, Electric and Communication Facility Safety Section, and Electric Generation Safety and Reliability Section, provide analyses of existing safety performance to be used in proceedings

**Supervisor, Gas Engineering and Compliance Section****Supervisors, Gas Regional Sections**

- Detect, document, and raise to program manager uncontrolled safety hazards and insufficient risk controls
- Identify and document safety violations
- Monitor and document effectiveness of identified risk controls

**Supervisors, Electric and Communication Facility Safety Section****Supervisors, Electric Generation Safety and Reliability Section**

- Detect, document, and raise to program manager uncontrolled safety hazards and insufficient risk controls
- Identify and document safety violations
- Monitor and document effectiveness of identified risk controls

## Sample Accountability/Responsibility Chart for Safety and Enforcement Division and an Office of Safety Advocates

