

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to
Develop a Risk-Based Decision-
Making Framework to Evaluate
Safety and Reliability Improvements
and Revise the General Rate Case
Plan for Energy Utilities

Rulemaking 13-11-006
(Filed November 14,
2013)

**SENATOR HILL'S NOTIFICATION OF THE INTRODUCTION OF
LEGISLATION PERTAINING TO SAFETY TREATMENT IN RATE CASE
PROCEEDINGS**

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I appreciate the Commission's resumed efforts to explore how best to include safety considerations in rate case proceedings. This filing is submitted to notify parties of R.13-11-006 that I have today introduced parallel legislation, SB 900, in support of this effort. It is my desire that this legislative proposal may inform and be informed by this proceeding. To that end, I have attached both the bill language and the background sheet submitted to the Senate Energy, Utilities, and Communications Committee, the committee that will hear the bill in the coming months. Background sheets are public documents supplied by the author's office to committee staff in order to provide the committee with relevant background and authorial intent. Background sheets are one source used by committee staff in the development of committee analyses.

On November 18th, 2013 the Subcommittee on Gas and Electric Infrastructure Safety held a hearing in San Francisco on how the Commission may improve its safety performance. In the hearing, Professor Richard Callahan, chair of the Department of Public and Nonprofit Administration at the University of San Francisco's School of Management, stated that "ultimately, culture drives performance, and what drives organizational culture are the conversations you have about performance and about metrics."

I provide the background sheet to the parties of this rulemaking to promote our continued conversation about safety. I invite any party, Commissioner, or staff member to contact my office to discuss this bill or this rulemaking so that we can continue the discussion and improve safety performance in the state's energy delivery services.

Respectfully submitted,

/s/ JERRY HILL

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SB 900: Incorporating Safety into Decision-making at the California Public Utilities Commission - Background Paper

Summary

Since the 2010 PG&E natural gas transmission pipeline explosion in San Bruno, individuals within and outside of the California Public Utilities Commission have discussed the need and the means by which safety should be considered in an energy utility's general rate case. The discussion has generally presupposed a connection between the amount of money spent on safety and safety outcomes, an assumption with limitations. Additionally, disagreements about the role of ratepayer advocates—particularly the Office of Ratepayer Advocates—undermine the Commission's ability to develop processes to address safety.

This proposed legislation approaches safety from a holistic point of view, recognizing that managing risk in decision-making is only part of the Commission's safety portfolio, and information gained in other oversight activities should inform ratemaking and be informed by it. It recognizes that the management of safety now needs to be addressed not because it could have prevented the disaster in San Bruno, but because utilities are now making rate increase requests that focus on safety and the Commission currently doesn't have processes to evaluate those requests.

The proposed legislation

- 1) requires the Commission's Safety and Enforcement Division to report on a utility's safety performance at the commencement of a rate case proceeding,
- 2) requires the Division to analyze the adequacy with which the utility assessed risk in its incremental safety funding requests,
- 3) requires the Commission to make safety-related findings in rate case decisions, and
- 4) requires the Commission to order the Safety and Enforcement Division to monitor safety metrics of the Commission's choosing in anticipation of the utility's next rate case application.

The author intends to work with the Commission to coordinate this legislation with the Commission's newly opened proceeding on the subject.

SB 900 is submitted to the Senate Committee on Energy, Utilities, and Communications for its consideration.

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1 Purpose of Legislation

The types of decisions made in rate cases and rulemakings often, though not always, have safety implications, and appropriate procedures, integrated into a larger safety program, are needed in rate cases and rulemakings to determine the extent of potential safety risks, actions to avoid or mitigate such risks, and to assign responsibility for monitoring and managing that risk.

“The point I really want to make here,” Dr. Arendt stated during the November 18th hearing of the Senate Subcommittee on Gas and Electric Infrastructure Safety, “is that you can’t divorce safety from decision-making.”¹

The rate case process needs to incorporate safety information so that safety proposals can be evaluated and compared against what the utility completed between rate cases.

Since the September 9, 2010 natural gas pipeline explosion in the Crestmoor neighborhood of San Bruno, the Legislature and the California Public Utilities Commission have begun to reexamine the manner in which the Commission should be engaged in safety oversight of regulated utilities. The Legislature and Commission first focused on prescriptive elements identified by the National Transportation Safety Board, such as the testing and replacement of transmission pipe, the development of emergency response plans, and the integration of remote and automatic shutoff valves. Both bodies then turned to compliance activities, such as delegating fine authority to safety staff and the developing of performance metrics.

In 2013 the Legislature turned its attention to the Commission’s efforts to integrate safety into its regular processes. While the Commission had soon after the explosion created a “safety considerations” field on its agenda items, the description in this item is rarely informed by any record of proceeding and frequently misleading. While the Commission has publically discussed including safety in rate cases, the Commission’s January 11, 2012 workshop on the subject demonstrated the lack of consensus between interested parties as to the nature of the problem, and only in November 2013 did the Commission make its next move of opening a proceeding on the subject.

The purpose of this legislation is to provide policy guidance to the Commission on the nature of safety and to ensure safety considerations are included in the Commission’s ratemaking and rulemaking proceedings. As this legislation follows the November 18th hearing of the Subcommittee on Gas and Electric Infrastructure Safety and the

¹ Senate Subcommittee on Gas and Electric Infrastructure Safety, “Improving Safety Oversight at the California Public Utilities Commission,” San Francisco, CA, November 18, 2013, minute 00:51:15.
<http://sd13.senate.ca.gov/multimedia/2013-11-19-senate-subcommittee-hearing-safety-and-california-public-utilities-commissio-0>

subcommittee's report on Commission safety progress,² the legislation is timely. It is also introduced at the beginning of the Commission's proceeding³ on including safety in general rate cases. The author looks forward to working with the Commission on the development of this policy.

1.1 Nature of the Problem: Safety in Ratemaking

The Independent Review Panel report into the San Bruno explosion (IRP) identified the lack of coordination and understanding between the ratemaking and safety functions of the Commission as an impediment to effective safety regulation. In particular, IRP pointed to the absence in rate cases of audit information of PG&E's transmission pipeline integrity management program. Of the Commission, IRP said

*"It is incumbent on the entire organization – safety and ratemaking branches -- to understand the need for investments in safety and reliability, the goals expected from the investments, the alternatives considered, and the progress in system improvements."*⁴

President Peevey, in discussing the conclusions of the IRP report, stated

*"...we seem to have drifted...both ourselves—this Commission—and those that we regulate in certain regards into a culture somewhat of complacency where we have taken, as commissioners, to accept the notion that if parties, such as DRA or TURN negotiate something with PG&E, that that's adequate. And we should have a higher standard is one of the things that I took out of part of what you said...that it's not adequate to rely on the parties, whether it's so-called consumer representatives or the utility that they've done their job, and we have to elevate it."*⁵

² Senate Subcommittee on Gas and Electric Infrastructure Safety, *Slow Progress Toward Safety: Improving Performance and Priorities in the Safety Plans of the California Public Utilities Commission*, Subcommittee Report, October 2013. http://seuc.senate.ca.gov/sites/seuc.senate.ca.gov/files/SlowProgressCPUC_v1pt1_10-28-13.pdf

³ "Order Instituting Rulemaking to Develop a Risk-Based Decision-Making Framework to Evaluate Safety and Reliability Improvements and Revise the General Rate Case Plan for Energy Utilities," R.13.11.006, November 14, 2013. <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M081/K856/81856126.PDF>

⁴ *Report of the Independent Review Panel: San Bruno Explosion*, Revised Copy, June 24, 2013, p. 103. <http://www.cpuc.ca.gov/NR/rdonlyres/85E17CDA-7CE2-4D2D-93BA-B95D25CF98B2/0/cpucfinalreportrevised62411.pdf>

⁵ Commission Business Meeting, June 9, 2011. http://streaming.aanet.org/ramgen/cpuc/smil/CPUC_OM060911-Spec0.smil,

Energy Division director Edward Randolph, in presenting to the Assembly Utilities & Commerce committee and the Joint Committee on Emergency Response after the San Gabriel Valley Windstorm of November/December 2011, noted that without a mechanism to consider safety in ratemaking,

*“we can’t tell you when a rate case is approved whether or not the amount of money allocated toward reliability and safety is the right amount of money.”*⁶

To address this issue, the CPUC held a workshop on January 11, 2012 to seek input and discussion.⁷ In the windstorm hearing, Randolph summarized the results of the workshop, noting two of the prominent positions:

- 1) that pulling safety consideration outside the rate case to give safety the attention it would not otherwise receive due to the absence of “safety” intervenors
- 2) that pre-approving safety plans in a separate proceeding would give utilities a blank check to “gold plate” their systems and guarantee large rate increases⁸

Following the workshop, on March 5th, 2013, Executive Director Paul Clanon wrote a letter to PG&E informing the utility that a set of consultants would be evaluating the safety risk assessment in its 2014 general rate case. Up to the Commission’s November 14, 2013 adoption of the Order Instituting Rulemaking (OIR) on including safety in ratemaking, there had been no further formal discussion on the issue.

The problem, as defined throughout the discussions on safety and ratemaking, was that safety costs money, and that at some point the marginal benefit for customers for a safety improvement will not justify its marginal cost. The author feels that this assumption requires further discussion.

1.1.1 Ratemaking not the cause of the San Bruno Explosion

The rate case process was not a contributing cause for the explosion in San Bruno. First and foremost, it isn’t clear that PG&E had historically been challenged by the

⁶ Assembly Utilities & Commerce Committee and the Joint Committee on Emergency Response, “Investigation of the December 2011 Southern California Windstorm Outage,” Alhambra, CA, January 3, 2012, minute 02:28:40. http://www.livestream.com/asmdc/video?clipId=pla_c4893d8b-9d02-438e-b9cb-33925e2e28b7

⁷ http://streaming.aanet.org/ramgen/cpuc/CPUC_WS011112-1.rm,
http://streaming.aanet.org/ramgen/cpuc/CPUC_WS011112-2.rm.

⁸ It should be noted that participants in the January 2012 workshop, while not coming to consensus or conclusion, demonstrated the “civil colloquy” that IRP had called for but had not yet seen at the time of its report.

Commission or by intervenors to its rate case proceedings on funding for safety—at least not any funding that was identified as safety-related. As Mark Toney, executive director of TURN stated during the November 14th, 2013 *Thought Leaders* seminar on effective regulation,

*“Whenever the utility companies did ask for money in safety—in general rate cases or gas accords—that was the one line item that TURN did not dispute or ask to be reduced.”*⁹

IRP supports the statement in its findings, which state that

*“the various parties in gas transmission cases appear to have assumed PG&E’s plans for pipeline safety and integrity management are generally appropriate and have thus supported the company’s requests.”*¹⁰

Cost constraints appear to have been largely internal to PG&E’s budgeting process. IRP noted that much of PG&E’s transmission pipeline integrity management work was not considered mandatory and thus deferred.¹¹ Overland Consulting’s financial audit of PG&E’s gas transmission expenditures paints a clearer picture. From 1996 to 2010, the utility shed gas transmission and distribution workforce, and in the latter part of the last decade it put off much of its mandated integrity management work, all while earning more than its authorized return on equity.¹²

Why was it that PG&E didn’t just ask for more resources to put toward safety?

PG&E management “seemed generally unaware of the quality of its pipeline integrity efforts,” even when interviewed after the explosion.¹³ IRP describes the difficulty it had in obtaining information from PG&E management on risk management, and found that “quality risk analysis to support strategic and policy risk management decisions at PG&E does not exist,” and that “there is no evidence top management has taken the

⁹ “Effective Regulation,” *Thought Leaders in Essential Industries Speaker Series*, November 14, 2013. http://streaming.aanet.org/ramgen/cpuc/CPUC_SS111413-1.rm, minute 1:17:00.

¹⁰ IRP, p. 107.

¹¹ IRP p. 51.

¹² Overland Consulting, *Focused Audit of Pacific Gas and Electric Gas Transmission Pipeline Safety-Related Expenditures*, December 30, 2011, p. 1-3, 1-4.

¹³ IRP p. 53.

necessary steps to be well-informed about key aspects of decisions selected to manage major risks that concern PG&E...”¹⁴

It appears that PG&E did not propose rate increases for safety improvements for the gas system because it did not recognize the problem.

Wilbur Wright wrote in 1901 that he had learned that, in flying,

*“carelessness and overconfidence are usually far more dangerous than deliberately accepted risks.”*¹⁵

1.1.2 Input dollars not an effective measure of safety

Support for considering safety in rate cases is premised on the idea that safety is a commodity—that if safety is found to be lacking we can go out and buy more of it. A recent report by the National Regulatory Research Institute clearly articulates this position:

*“The safety level of a utility depends on the resources devoted to safety-related activities, as well as managerial allocation of those resources. Costs hinge on the incentive of the utility to use the right mix and level of resources. How much should a utility spend on safety? The theoretical answer is that the utility should achieve the socially optimal level of safety at least cost. The socially optimal level is difficult to determine. Besides, it falls outside the domain of utilities to determine. Utilities do, however, have control over the costs they expend to achieve the safety levels compatible with federal and state regulations.”*¹⁶

The author considers this a theoretical assessment of the situation—an assessment that needs serious examination. While a utility cannot maintain a safe system without sufficient resources, sufficient—or abundant—resources do not guarantee safety, and probabilistic risk analysis has its limits. It also suggests that utilities will do what they need to do to meet state regulations and no more. Thus, if state safety regulations are deficient, it is likely the utility safety programs are also deficient.

¹⁴ IRP p. 56

¹⁵ Don Arendt, “Safety Management: Culture, Risk Management, and SMS,” Senate Subcommittee on Gas and Electric Infrastructure Safety hearing, “Improving Safety Oversight at the California Public Utilities Commission,” San Francisco, CA, November 18, 2013, Slide 12. <http://seuc.senate.ca.gov/sites/seuc.senate.ca.gov/files/11-18-13%20Arendt.pdf>

¹⁶ Ken Costello, *Balancing Natural Gas Pipeline Safety with Economic Goals*, National Regulatory Research Institute, May 2012, p. 6.

Disasters in high-risk industries, generally speaking, are not caused because of insufficient resources. James Reason, one of the early experts on accidents in complex incidents, states in *Managing the Risks of Organizational Accidents* that 80% of accidents are caused by human failures and 20% are caused by technical errors.¹⁷ Some accidents are facilitated by the complex systems put in place to prevent those accidents in the first place. Increased automation presents challenges for human operators; sometimes procedures written to prevent the last accident from recurring can help create the next; and poorly designed alarms can encourage front-line employees to ignore them.¹⁸ One recent example of a poorly-designed alarm system was that used by Enbridge, Inc., where control room operators were encouraged to ignore low-pressure alarms for a petroleum pipeline running across Michigan. This led to a rupture not being detected for 17 hours, leading to the most expensive onshore pipeline cleanup in history, exceeding \$800 million.¹⁹

Additionally, organizational accidents that can be attributed to human factors occur because of incorrect—as opposed to absent—maintenance. Incorrect recovery from maintenance operations has been implicated in the Apollo 13, Three Mile Island, and Bhopal accidents, among others.²⁰ While the proximate cause of the San Bruno explosion was a weak longitudinal weld of a transmission pipe, the high-pressure condition was caused by the failure of an uninterruptible power supply during maintenance.²¹

While resources are necessary to maintain safe and reliable utility operations, they are by no means a sufficient condition for a safe system. An understanding of the utility's system, the hazards associated with it, and a risk analysis informed by data and experience are the keys to making informed risk decisions—decisions which may or may not involve the request for more resources.

Quite often, improvements in safety are converted into productive advantages, eliminating any safety improvement. Reason describes how the invention of the flame-arresting Davey lamp in the early nineteenth century allowed coal miners to work in areas previously too dangerous because of the presence of combustible gases. Mine

¹⁷ James Reason, *Managing the Risks of Organizational Accidents*, Ashgate, Burlington, 1997 p. 42.

¹⁸ Reason, Chapter 3, “Dangerous Defenses.”

¹⁹ National Transportation Safety Board. 2012. *Enbridge Incorporated Hazardous Liquid Pipeline Rupture and Release, Marshall, Michigan, July 25, 2010*. Pipeline Accident Report NTSB/PAR-12/01. Washington, D.C.

²⁰ Reason, Chapter 5, “Maintenance Can Seriously Damage Your System.”

²¹ NTSB *San Bruno*, p. 5.

explosions nonetheless increased dramatically following the lamp's introduction.²² With federal integrity management regulations for transmission pipelines and their approval of direct assessment as an acceptable means of compliance, many transmission pipeline operators reduced their pipe replacement, hydrostatic testing, and in-line inspection retrofiting.

The reason why a productive enterprise may choose to translate a safety improvement into a production advantage is simple and familiar. As Dr. Don Arendt, senior technical advisor for safety management at the Federal Aviation Administration Flight Standards Service, stated during the November 18th hearing, "we're not in business to *be* safe...we're really in business to provide some useful service to the public."²³ A productive enterprise will tend to value increased production higher than other benefits. This is the source of the "rebound" effect, where improvements in energy efficiency can increase consumption. This is why, when we give a hotel owner \$10,000 and tell him that investing in energy efficiency improvements could return that investment in a mere 6 months, the hotel owner takes that \$10,000 goes out and buys more advertising to fill his rooms. Safety, too, can be subject to the substitution effect.

On the other hand, safety improvements aren't always expensive. Dr. Arendt recounted how he had asked one of the largest airline operators in the country how many people were hired to implement their new safety management system, and the answer was one, as the safety improvement "was not so much about cost, but it was a reorientation of the way they did the work."²⁴ There are factors other than money that affect a utility's level of safety performance

1.1.3 Safety consideration needed because of safety proposals, not their lack

The problem of safety in rate cases is not that the rate case process didn't stop the disaster in San Bruno—the problem is, now that safety is getting more attention, how is the Commission to assess utility proposals for safety improvement and maintenance? In his dissent to the majority opinion in *Hope Natural Gas Company v Federal Power Commission*, Justice Jackson articulated his concern about the nature of rate-of-return regulation:

"Let us assume that Doe and Roe each produces in West Virginia for delivery to Cleveland the same quantity of natural gas per day. Doe, however, through luck or

²² Reason, p. 6.

²³ November 18th hearing, minute 00:49:25.

²⁴ November 18th hearing, minute 00:51:00.

foresight or whatever it takes, gets his gas from investing \$50,000 in leases and drilling. Roe drilled poorer territory, got smaller wells, and has invested \$250,000. Does anybody imagine that Roe can get or ought to get for his gas five times as much as Doe because he has spent five times as much? The service one renders to society in the gas business is measured by what he gets out of the ground, not by what he puts into it, and there is little more relation between the investment and the results than in a game of poker.”²⁵

The Commission has, through its century in existence, developed methods to assess utility spending requests. Electric generation procurement, for instance, has a well-developed means of prudence testing, involving historical cost information and competitive bidding. The Commission has not, however, historically examined the prudence of safety investments, as it had trusted that the utility had both the commitment and understanding of its safety requirements to make the appropriate investments. As the Commission evolves to take a more active interest in safety, it will have to develop a means to assess the prudence of a utility’s proposed safety expenditures.

In order to judge a utility safety proposal, the Commission will have to understand the process by which that proposal is developed. The rate case is a budgeting process, much like the budgeting processes that occur within the utilities. As such, it must have processes that effectively incorporate an understanding of a utility’s safety performance, its safety goals, and the means by which it intends to reach those goals.

While traditional compliance regulation (compliance with prescriptive standards) still has a place at the Commission, the Commission has moved toward a performance-based model. The federal pipeline integrity management regulations—both for transmission and distribution pipe—is performance-based; the utility develops a plan, and the regulator assesses the plan and monitors its performance. The implementation of SB 705 (Leno, Statutes of 2011)—though still in its early stages—is meant to be the same. The rate case process, in its ideal, is not terribly different, as the Commission often examines past expenses to gauge the proposal for a future test year.²⁶ The rate case process needs to incorporate safety information so that safety proposals can be evaluated and referenced to existing safety performance.

Ironically, the inclusion of safety consideration is more important now than it was before the San Bruno explosion, as rate cases have placed a great deal more emphasis on

²⁵ Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944), at 649.

<http://supreme.justia.com/cases/federal/us/320/591/case.html>

²⁶ Note that “performance-based regulation” in this context is not the same as “performance-based ratemaking.” Performance-based regulation represents an oversight of industry process and of its output indicators, whereas performance-based ratemaking emphasizes incentives.

safety. The rate case is not the means by which a utility is to start caring about safety; it is the budgetary expression and commitment to safety. If a utility does not ask for sufficient resources in a rate case application to support its safety efforts, it is not the job of the rate case to change that. If a utility does not ask for sufficient resources in a rate case application to support its safety efforts, it is the failure of the Commission's compliance arm to sufficiently motivate the utility to do so.

As such, the rate case is not the primary means by which safety is achieved, but nonetheless an important supporting player.

2. Safety Policy

2.1 Why Consider Safety in Decision-making?

This bill has two main premises: that safety cannot be divorced from decisionmaking, and that the coordination between economic and safety regulation is in the public interest.

2.1.1 Premise 1: Safety Cannot Be Divorced from Decisionmaking

The types of decisions made in rate cases and rulemakings often, though not always, have safety implications, and appropriate procedures, integrated into a larger safety program, are needed in rate cases and rulemakings to determine the extent of potential safety risks, actions to avoid or mitigate such risks, and to assign responsibility for monitoring and managing that risk.

"The point I really want to make here," Dr. Arendt stated during the November 18th hearing, "is that you can't divorce safety from decision-making."²⁷

Arendt cited a number of reasons for this, including what is known as "practical drift":

"Most catastrophes aren't the result of monumental blunders on the part of one individual or a small group of individuals, rather they tend to be built on incremental, almost unnoticeable, changes."²⁸

Some of the causes of practical drift include "regulations that are not applicable within certain contextual limitations; introduction of changes to the system, including the addition of new components; the interaction with other systems; and so forth."²⁹ While

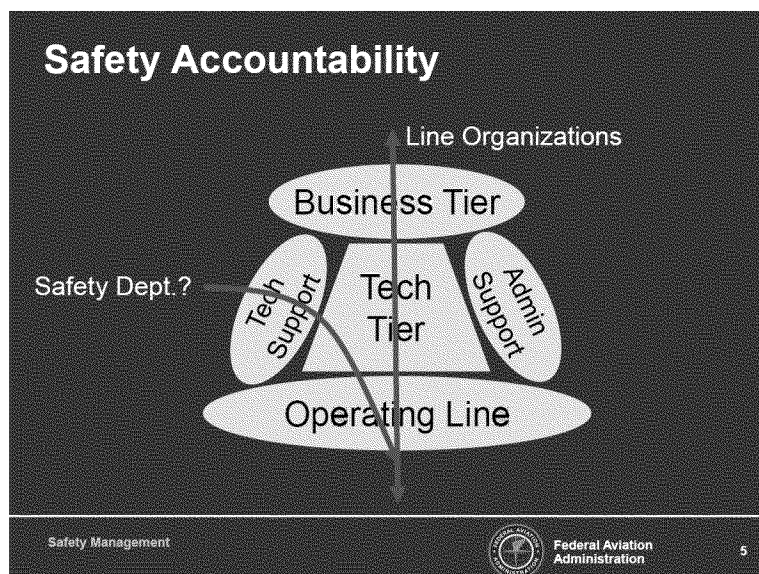
²⁷ Minute 00:51:15.

²⁸ Minute 00:46:20.

²⁹ *Doc 9859: Safety Management Manual*. 3rd Edition, International Civil Aviation Organization, 2013, p. 2-6.

not all of the causes of practical drift are conscious choices, decision-making is an important source.

Another reason Arendt cited for why safety must be included in high-level decision-making was organizational. “What happens if the safety department runs safety?” he asked, pointing to the curved arrow on the following slide.



“You can see that it is peripheral to the actual activities of the organization. I just mentioned that the mission and the allocation of funds and the payment of costs and investments have to be part of the decision-making that incorporates safety.”³⁰

2.1.2 Premise 2: Coordination Between Economic and Safety Regulation is in the Public Interest

After the San Bruno accident, there was discussion that gas safety authority should be stripped from the Commission and given to the Office of the State Fire Marshall. IRP suggested considering this possibility.³¹ Vice-Chair Christopher Hart of NTSB had raised the question of whether or not it was a good idea for the same organization to act as an economic and safety regulator. Without coming to any conclusions, he wondered if an organization having both roles might be less willing to approve resources needed

³⁰ Minute 00:52:15.

³¹ IRP, p. 103.

for safety improvements.³² Ken Costello, in his white paper for the National Regulatory Research Institute, cites the concern of Rick Kessler, vice president of the Pipeline Safety Trust, “is there an inherent conflict for commissioners to approve spending on safety initiatives, which are long-term investments, due to short-term pressures.”³³

Costello, argues the opposite point, that the conflict is a manifestation of the tradeoffs between safety and rates, and that addressing that conflict will lead to economically efficient outcomes.

The author accepts the latter premise without proof, as there has been no clear demonstration that one is better than the other. As described in section 1.1.2, Costello’s premise that risk can be effectively quantified is suspect based on our understanding of organizational accidents. On the other hand, there is no convincing evidence that separation of safety and economic regulation leads to sufficiently safe outcomes. The federal pipeline regulator, the Pipeline and Hazardous Materials Safety Administration (PHMSA), only regulates safety, yet it has been widely accused of ineffectiveness due to regulatory capture.³⁴

The author accepts the premise that economic and safety regulation should be considered together for the practical matter that the system we have now is the devil we know, that it’s problems are fairly well understood and can be addressed, and that we have too little information to demonstrate that a radical departure in the organization of the state’s safety oversight has a high likelihood of success.

2.2 Who is Obligated to Consider Safety?

³² National Transportation Safety Board. 2011. *Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire, San Bruno, California, September 9, 2010*. Pipeline Accident Report NTSB/PAR-11/01. Washington, D.C., p. 137. <http://www.nts.gov/doclib/reports/2011/PAR1101.pdf>

³³ Costello, p. 9.

³⁴ Washington, D.C. watchdog Protecting Employees Who Protect Our Environment (PEER) found that PHMSA had by mid-2013 only implemented 3 of the 20 recommendations made to it by NTSB after the 2010 San Bruno and Marshall, MI accidents (<http://www.peer.org/news/news-releases/2013/06/25/pipeline-disaster-prevention-steps-still-not-taken/>); PHMSA Associate Administrator Jeff Wiese had commented that low penalty authority from Congress and slow rulemaking hinder PHMSA’s ability to regulate pipelines; Congresswoman Jackie Speier has stated that “the industry has a lock on PHMSA. It has a lock on Congress. And the public’s interest gets dramatically watered down” (<http://insideclimatenews.org/news/20130911/exclusive-pipeline-safety-chief-says-his-regulatory-process-kind-dying>); comparing the PHMSA’s progress and that of a state regulator may not be fair, however, given the political atmosphere in the nation’s capital.

As Arendt stated, “the service provider has the responsibility to provide safe service; the regulator has the responsibility to assure that to the public; and they need to respect each other’s legitimate roles.”³⁵

As there does not appear to be a consensus of all parties what roles different player at the Commission do or should have with regard to safety, this paper will start with an exploration of roles.

2.2.1 Public Utilities

Public utilities have a number of statutory mandates with regard to safety, none more broad than Public Utilities Code Section 451 (PU Code §451). The utility’s responsibility appears fairly well-understood.

2.2.2 The Commission

The Commission’s safety mandate is varied depending on the industry it regulates. As it has authority to enforce the Public Utilities Act, it enforces PU Code §451. More specifically, it has the ability to inspect accidents (PU Code §315, §316), safety authority over electric line construction (PU Code §8001-8057), and oversight of pipeline safety (PU Code §950-970) and rail safety (PU Code §309.7 and others). Through entering agreements with the federal Department of Transportation, the Commission has agreed to enforce the federal safety regulations for jurisdictional rail (49 USC § 20105) and natural gas pipelines (49 USC § 60105). It has the ability to levy punishment—including the (never exercised) power to imprison violators (PU Code §2101-2115). Though there has been argument over the full extent to which the Commission has authority over safety (particularly with municipal electric utilities and exempt wholesale generators), that the Commission has broad authority over safety is uncontested.

Relatively new is the question of the Commission’s safety responsibility for industries that it does not directly regulate for safety but subsidizes using money collected from its regulated utilities. What is the Commission’s safety responsibility in its promotion of rooftop solar through the California Solar Initiative and Net Energy Metering? What are the Commission’s safety responsibilities in mandating renewable or storage procurement from FERC-jurisdictional wholesale energy suppliers? If one believes the premise that integration of economic and safety regulation is in the public interest, the answer to these questions cannot be “none.” The Commission has taken a position on safety with respect to energy efficiency improvements by, among other things, requiring CO₂ monitors after homes have been sealed to restrict air leakage and that products that receive rebates be listed by nationally recognized testing laboratories.

³⁵ November 18th hearing, minute 00:59:45.

2.2.3 Rate Case Settlements and the Role of Intervenors

The safety responsibility of intervenors has been contentious, especially the ratepayer advocates that regularly participate in rate case settlement negotiations.

During the *Thought Leaders* speaker's series on Effective Regulation, moderator Susan Kennedy also found fault in the settlement process.

*"One of the worst things we've done is turn over this entire regulatory process to the settlement process. I mean, if you want to talk about the quintessential example of ineffective regulation, TURN was at the table for every single gas settlement over the last ten years, and it led to San Bruno. Why are we calling for regulators to resign, and we're not holding you (Mark Toney of TURN) accountable? That's what the settlement process has produced."*³⁶

Mark Toney of TURN had a different view of his organization's responsibilities:

*"we have never expected the CPUC, with as many staff and resources that it has, to do TURN's job. And I think it's an unreasonable expectation to expect TURN to do the Commission's job, and we did believe that it was the Commission's responsibility to be on top of safety."*³⁷

To decide what the intervenors' role is with respect to safety, the author first considers the intervenors' statutory and regulatory responsibilities. PU Code §1801.3 states that

"It is the intent of the Legislature that... (b) The provisions of this article shall be administered in a manner that encourages the effective and efficient participation of all groups that have a stake in the public utility regulation process."

Nowhere in the article dedicated to the intervenor compensation program (PU Code §1801-1812) is safety mentioned. Work in safety is not required in the Commission's Rules of Practice and Procedure, either to participate as a party in a proceeding (Rule 1.4) or to receive intervenor compensation (Article 17).

Were the Commission to holding intervenors responsible for safety in the absence of statute, the Commission would risk inappropriately delegating its authority. The principle by which it operates, determined by state case law, is that

³⁶ "Effective Regulation," *Thought Leaders in Essential Industries Speaker Series*, November 14, 2013. http://streaming.aanet.org/ramgen/cpuc/CPUC_SS111413-1.rm, minute 1:11:26.

³⁷ "Effective Regulation," *Thought Leaders in Essential Industries Speaker Series*, November 14, 2013. http://streaming.aanet.org/ramgen/cpuc/CPUC_SS111413-1.rm, minute 1:16:51.

“powers conferred upon public agencies and officers which involve the exercise of judgment or discretion are in the nature of a public trust and cannot be surrendered or delegated to subordinates in the absence of statutory authorization.”³⁸

The Commission has on a number of occasions drawn the line of how far it may delegate its authority. It has interpreted this restriction to prohibit it from ordering a formal stakeholder governance structure for a research initiative³⁹ and even prohibit it from establishing a formal advisory committee.⁴⁰ The idea that the Commission can depend on intervenors and the utility to determine the safety of a given revenue requirement—even in light of a negotiated settlement—is inconsistent with statute, case law, and Commission precedent.

2.2.4 The Office of Ratepayer Advocates

The Office of Ratepayer Advocates (ORA) needs to be considered separately from other parties to a proceeding. ORA is a part of the Commission, and so some duties may be transferred to it from the Commission. Additionally, ORA is a statutory body that must consider safety in a ratesetting context as a part of its charge, as “the goal of the office shall be to obtain the lowest possible rate for service consistent with reliable and safe service levels” (PU Code §309.5).

How are we to interpret this safety charge? Clearly, when faced with a choice of advocating for a safe option with for a rate increase and advocating for an unsafe option for no rate increase, ORA is statutorily bound to choose the former. ORA has, however, been the object of criticism by PG&E and the Coalition of California Utility Employees (CCUE) in PG&E’s 2014 general rate case proceeding for not engaging safety enough. In rebuttal testimony, PG&E stated that

“Other than the SED consultants and the unions, most parties appear to have ignored PG&E’s testimony on its risk and safety programs. DRA and the key

³⁸ D.09-05-020, *Order Modifying Resolution ROSB-003 and Denying Rehearing of Resolution, as Modified*, May 7, 2009, A.08-12-004, p. 2. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/146149.PDF

³⁹ D.12-05-037, *Phase 2 Decision Establishing Purposes and Governance of Electric Program Investment Charge and Establishing Funding Collections for 2013-2020*, May 24, 2012, R.11-10-003, p. 77. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF

⁴⁰ D.13-11-025, *Decision Addressing Applications of the California Energy Commission, Pacific Gas and Electric Company, San Diego Gas and Electric Company and Southern California Edison Company for Approval of their Triennial Investment Plans for the Electric Program Investment Charge Program for the Years 2012 Through 2014*, November 14, 2013, A.12-11-001, p. 61. <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M081/K773/81773445.PDF>

intervenors asked no risk and safety questions about these chapters and provided no testimony about them. PG&E has started the dialogue. It's important that others engage as well.”⁴¹

More forcefully, CCUE, in its opening brief, felt that

“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.”⁴²

Given the forcefulness of the accusation and the apparent disagreement of what ORA’s role is, the Commission must handle this question is if it is to understand how best to incorporate safety into decision-making. After all, IRP’s greatest criticism of the ratemaking process was the lack of a “civil colloquy” between stakeholders.⁴³

To examine ORA’s role (or potential role) in decision-making, we shall first examine its capabilities. While it is statutorily bound not to disregard safety, whether or not an action leads to a safer, less safe, or equally safe outcome is rarely clear. Safety outcomes are difficult to measure, and the association of predicted safety levels with proposed spending combines both quantitative risk assessment and an understanding of utility operations.⁴⁴ ORA, faced with a utility application, may not be well-suited to unpack its safety implications. ORA, after all, has only very little in the way of engineering capability. While ORA or another party could possibly address in depth a few aspects of safety risk management in the many proceedings in which it participates, it doesn’t have the resources or technical expertise in-house to analyze safety comprehensively, and it could not cope with such a responsibility if it were placed upon it.

Just because ORA is not currently geared toward a comprehensive evaluation of utility safety, however, that does not mean that it could not become so in the future. To evaluate whether or not a ratepayer advocate *should* be responsible for safety, we first examine James Reason’s model for the tension between production and protection.

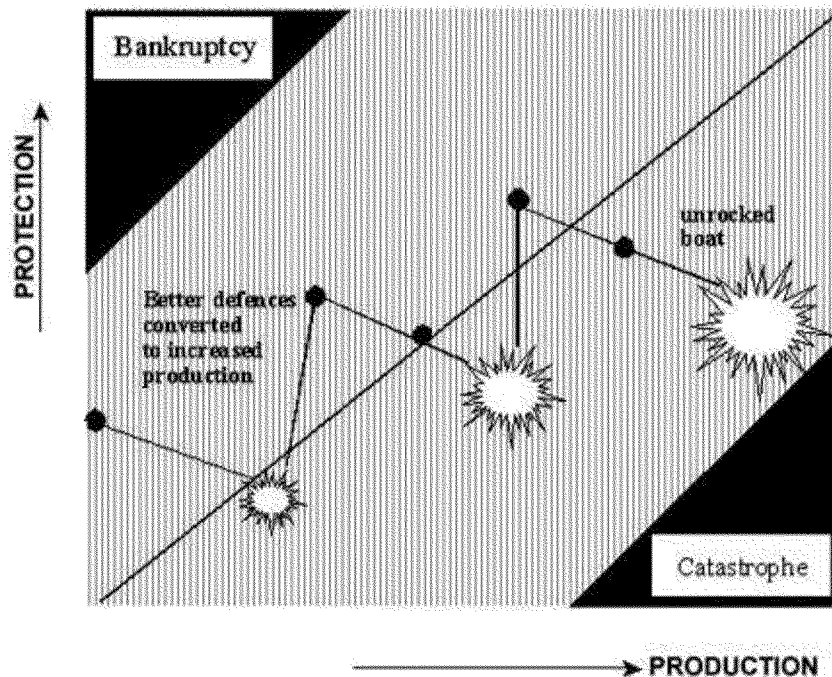
⁴¹ “Pacific Gas and Electric Company 2014 General Rate Case Rebuttal Testimony,” A.12-11-009, June 28, 2013, p. 1-3. https://www.pge.com/regulation/GRC2014-Ph-I/Testimony/PGE/2013/GRC2014-Ph-I_Test_PGE_20130628_280407.pdf

⁴² “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>

⁴³ IRP, p. 26.

⁴⁴ IRP, pp. 20, 94.

All productive enterprises that manage hazards must put enough resources toward protection as to avoid catastrophic failure. If the enterprise puts too many of its resources into protection, it will not be able to cover its expenses. As Dr. Arendt stated in the November 18th hearing, “we’re not in business to be safe...we’re in business to provide some useful service to the public.”⁴⁵ A diagram of this tension can be seen below.⁴⁶



This model was developed for a traditional business and deserves re-examination in the context of a rate-regulated utility. Before doing so, a note of caution: this is just a model, not an iron law, and it should only be considered as far as it is useful. For instance, in studying the safety at nuclear plants following utility divestiture to unregulated companies as a consequence of electrical restructuring in the 1990’s, Catherine Hausman of Haas School found that the divested plants increased both production and observable safety measures.⁴⁷ The positive correlation between protection and production makes sense for the nuclear power industry—certainly for employee safety measures—as more hazards are present during maintenance activities in shut down and start up than during normal operations. It may not be true

⁴⁵ November 18 hearing, minute 00:49:25.

⁴⁶ Adapted from Reason, p. 5.

⁴⁷ Catherine Hausman, “Corporate Incentives in Nuclear Safety,” Energy Institute at Haas Working Paper Series, March 2013. http://ei.haas.berkeley.edu/pdf/working_papers/WP223.pdf

universally.⁴⁸ The model represented in the above figure is used here not to presume the connection of cost to safety outcomes but to examine the basis for positions that parties may be predisposed to take before the Commission.

Once a revenue requirement has been set, a utility will operate much the same as a traditional business. It will attempt to minimize costs to pass surplus to its investors while maintaining sufficient resources to manage risks and prevent accidents.

Much of Commission business, however, is to determine how much money a utility is allowed to charge its customers for a particular service—either directly through utility applications, such as rate cases, or indirectly, such as setting standards for service in rulemakings.⁴⁹ In this case, at stake is not the utility’s money but the ratepayer’s money, and the “production” of the x-axis becomes consumer surplus. The ratepayer advocate faces the same pressure to control costs during a rate case that the utility faces between rate cases.

Moreover, while the downside of a catastrophe for rate-regulated, monopoly utility is not as great as company in a competitive marketplace, the economic downside of a catastrophe for a ratepayer advocate is even less so.

ORA, therefore should be given no further formal responsibility for safety in ratesetting situations. Developing a record on safety has not been ORA’s job, and there is no compelling reason to change that. ORA is bound by law not to advocate for a level of utility spending that is unsafe, but it has no statutory or regulatory responsibility to evaluate the quality of a utility at the operational level, nor does it have the capability to do so in a comprehensive manner. For these reasons, the devolution of safety responsibility to ORA from the Commission would be ill-advised.

Like any other party—including the hypothetical intervenor whose focus is safety—ORA has the opportunity to provide input on safety matters, and it may wish to in order to more effectively carry out its statutory mission, but safety should not be its assigned responsibility.

One final reason not to place safety responsibility onto a ratepayer advocate is that the struggle between safe service and low rates should not be decided in the heart of an

⁴⁸ Hausman notes that safety may not naturally improve with more efficient operation for those elements of safety that are not positively correlated with increased reliability, p. 9.

⁴⁹ In a rate case, the utility typically argues for a higher allowance for ratepayer funds, while ORA and other ratepayer advocates will argue for a relatively lower collection. In other cases, however, such as when rate increases are proposed for the adoption of third-party technology, the ratepayer advocates and the utilities will both argue for a lower collection. Regardless of the utility’s position, however, the ratepayer advocate role will be the same.

intervenor. Such a decision lies with the Commission, a decision that can only be made if that struggle is present on the record. To have one party determine off-record the appropriate balance between safety and low rates not only would be an inappropriate delegation of Commission authority, it would logically lead to the same problem that has been identified in association with the settlement process—the “black box” where the interests of the settling parties are considered, but not necessarily all issues of interest to the Commission.

So if safety responsibility remains with the Commission, how should the Commission exercise that responsibility? And does that mean that ORA has no role when it comes to safety? To answer these questions, we need to examine current best practices in safety management.

3 Safety Management

3.1 What is Safety?

When developing a program to improve performance in a particular area, one needs to define goals, develop a series of actions to achieve those goals, and develop metrics to evaluate the progress attributable to those actions in reaching those goals. None of this is possible without an operating definition of the goal one is trying to achieve.

Nowhere is this more true than with safety, colloquially considered to be the absence of harmful accidents. Absence, however, does not facilitate an effective operating definition. The Commission has not, in its General Orders, defined safety, nor has it had direction from the Legislature, which has given the Commission safety responsibility but not a definition from which to work.

One of the consultants tasked with evaluating PG&E’s 2014 general rate case filing found this state to be problematic, recommending that “the lack of a mutually agreeable definition of ‘safety project’ creates another impediment to the fulfillment of the CPUC expectations.”⁵⁰

Such a state is not restricted to the Commission or even to California. Dr. Arendt, in the November 18th hearing, noted that the FAA and its predecessors have operated without a statutory or even regulatory definition of safety for the 90-year history of aviation regulation.⁵¹ When asked how the Commission should define risk, Arendt stated that

⁵⁰ Liberty Consulting Group, *A Study of Risk Assessment and PG&E’s GRC*, May 6, 2013, p. S-6.
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M065/K394/65394210.PDF>

⁵¹ Minute 01:03:30.

the focus should be on risk, and that safety should be considered to be a state where risk is managed to acceptable levels. Specifically, Arendt cited the definition developed by the International Civil Aviation Organization (ICAO):

“Safety is the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.”⁵²

Such an operating definition has a number of implications. First and foremost, someone needs to determine the “acceptable level” of risk of harm. The regulatory body or bodies overseeing the industry (the Commission, in the case of exclusive jurisdiction) needs to be that someone who determines the acceptable level of safety risk, as the risk is borne by the residents of California. What the “acceptable level” would be is a difficult question that can only be answered with specific hazard information. Second, the means by which the state of safety is achieved is through a “continuous process” that includes some jargon which presupposes a certain understanding of risk management. This type of process, the “safety management system” or SMS, will be discussed in the next section.

Before endorsing this definition, one note of caution is warranted. Risk management, as will be discussed, is generally prospective. In developing an analysis of safety risk, whether quantitative or qualitative, historical data is used, but used to project a best guess of a safety outcome. The less robust the historical data, or less applicable it is to a given situation (especially problematic in introducing new technology), the less accurate a risk assessment will be.

Safety is not easy to predict, for reasons such as those discussed above, and safety performance needs to be regularly re-evaluated. This after-the-decision evaluation process is often called “safety assurance,” and it is integral to this legislative proposal. The author will therefore include it explicitly in the definition of safety:

“Safety is the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification, ~~and~~ safety risk management, and safety assurance.”

The proposed legislation does not define safety, but it presupposes this one as an operating definition.

⁵² International Civil Aviation Organization, *Doc 9859: Safety Management Manual*. Third Edition, 2013, p. 2-1. <http://www.skybrary.aero/bookshelf/books/644.pdf>

3.2 Evolution of Safety Management

Safety management has developed differently in different industries, but accidents in the 1980s led many industries to the development of what is now referred to as a *safety management system* (SMS). The SMS began not as a theory but as a set of best practices meant to address several problems that had emerged out of the complexity of industrial systems. Such problems include:

1. *Humans cause 80% of accidents.* As technology progressed, technical failure became less and less a cause of accidents. The focus on “human error” and how individuals interact with technology, on the other hand, was not successful in reducing accidents. By the 1990s it was recognized that organizations are complex environments that place pressures on individuals, and organizations needed to be a focus of safety efforts.⁵³
2. *Industrial systems are too complex for traditional standards and regulation.* As industrial systems became more complex, it became more and more difficult to draft prescriptive standards and regulations that, if followed, could reasonably assure safe operations. The answer was what is sometimes referred to (with considerable baggage) as “self-regulation”—the idea that the operator knew its system better than any regulator could, and thus it should write its own procedures. The role of the regulator (as would also be described by IRP) is to examine the strengths and weaknesses of an operator’s procedures and evaluate the operator’s safety performance.⁵⁴
3. *Accidents too infrequent yet of too high-consequence to rely on improvement through accident investigation.* As technical improvements reduced the frequency of accidents, relying on accident investigations as means to improve safety became a less effective strategy. As Dr. Arendt stated in the subcommittee hearing, “we learn a lot from these watershed events, but it’s all too often easy to be reactive at those—we address the surface causes, we outlaw the probable cause of the most recent accident, and we go on about business.”⁵⁵ At the same time, technological improvements allowed industry to handle greater and greater hazards, so that the consequences of accidents became more and more intolerable. To improve safety, high consequence organizations and their regulators have attempted to be proactive by focusing on the safety of processes.

⁵³ ICAO, *Doc 9859: Safety Management Manual*, p. 2-1.

⁵⁴ Australian Transport Safety Bureau, *A Systematic Review of the Effectiveness of Safety Management Systems*, Report AR-2011-148, November 2012, p. 2. http://www.atsb.gov.au/media/4053559/xr2011002_final.pdf

⁵⁵ Minute 00:49:40.

SMS was developed with the recognition that, as safety is difficult to measure, process was important. Regulators that require SMS understand that 1) there are best practices in an industry, often demonstrated through standards (ISO, ASME, etc), that 2) the industry's processes are sufficiently complicated that failures that lead to accidents will rarely have a single cause but be a combination of latent unsafe conditions that can be identified and addressed before an accident occurs, that 3) those latent unsafe conditions are dynamic, not always easily identifiable, and may be difficult to eliminate even with prescriptive standards, and that 4) an essential means of managing addressing latent unsafe conditions is effective communication from line workers up through the decision-making structure.

Other industries, following disasters, have also developed their own SMS.

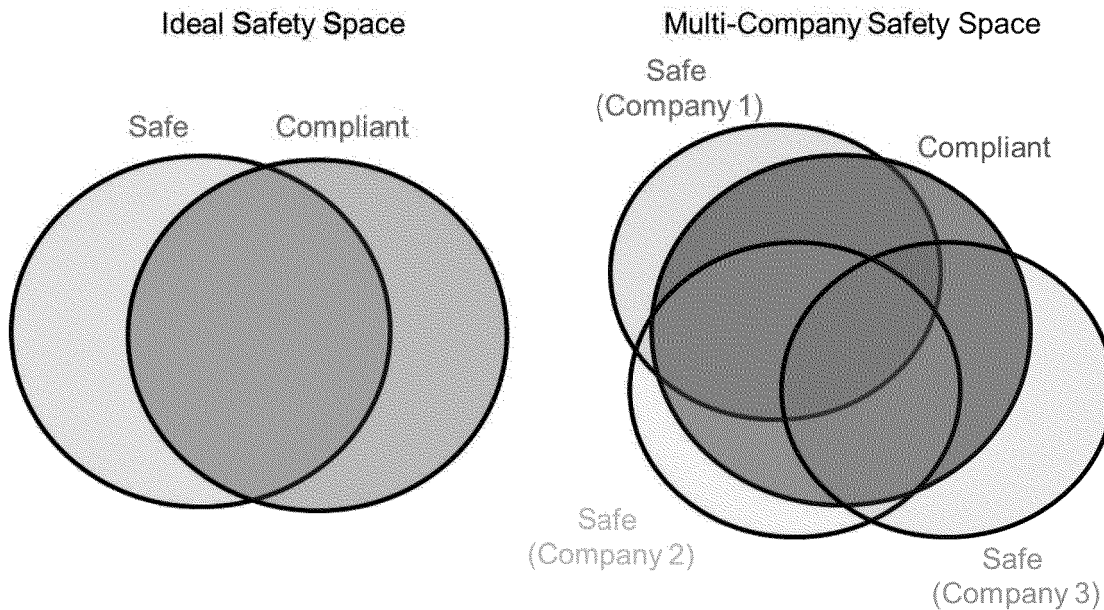
- Following the *Piper Alpha* disaster, in which a fire on an oil rig in the North Sea killed 167 people in 1988 (with only 61 survivors), the American Petroleum Institute (API) developed its Recommended Practice 75, which called for operators to develop a Safety and Environmental Management System (SEMS) which was to help promote a performance-based approach to safety and to facilitate continual improvement and effective communication. After the *Deep Horizon* oil spill in 2010, SEMS became mandatory in United States jurisdictional waters.⁵⁶ *Piper Alpha* also led to “safety case” regulation in Great Britain’s offshore oil operations, which focuses on an evaluation of an operator’s safety program and places less emphasis on prescriptive regulation.
- In 1987, the 8-deck car and passenger ferry *Herald of Free Enterprise* capsized while leaving a port in Belgium, killing 193 passengers. The International Maritime Organization (IMO) started a process to develop what would become its International Safety Management Code—an element of which was an operator’s development of an SMS. The IMO made the code mandatory in 1998.⁵⁷
- In 1996, ValuJet Flight 592 crashed in the Florida Everglades 10 minutes after takeoff, killing all 110 passengers. This and other accidents in the mid-1990s demonstrated the challenge of regulation in the new, economically unregulated aerospace environment. Early in the 2000s the Federal Aviation Administration’s (FAA’s) Air Transportation Oversight System adopted an SMS,

⁵⁶ “Legal Research Digest 19: Legal Issues Related to Developing Safety Management Systems and Safety Risk Management at U.S. Airports,” Airport Cooperative Research Program, Transportation Research Board, National Research Council, January 2013.

⁵⁷ “Safety Management,” International Maritime Organization, <http://www.imo.org/OurWork/HumanElement/SafetyManagement/Pages/Default.aspx>, last accessed January 5, 2014.

and FAA currently has proposed rules to mandate SMS for airports and for air carriers.⁵⁸

As we examine the process-focus of SMS and the process focus of decision-making, we should not presume that traditional compliance activities are of inherently lower value. In reality, some regulations do not protect safety and some actions a utility needs to perform will not be within regulations. Nonetheless, for the most part prescriptive compliance activities promote safety. This situation is described in concept by the following figure.



We might be tempted to think that all we need to do is to fix our prescriptive regulations so that the “compliance” circle on the left overlaps with the “safe” circle. In reality, however, what is “safe” for one regulated company is not the same as what is “safe” for another company.⁵⁹ Therefore, regulators will choose a base set of prescriptive safety regulations and supplement them with performance- or process-based regulations. It is in the regulator’s best interest to maximize compliance overlap, as prescriptive regulation is less time- and training-intensive to oversee, it sets clearer expectations of company performance, and violations of prescriptive rules are easier to litigate.

The purpose of the model diagrammed above is to demonstrate on a conceptual level the place for prescriptive, “compliance-based” regulations. Even this model, however, is

⁵⁸ <http://www.gpo.gov/fdsys/pkg/FR-2010-10-07/pdf/2010-25338.pdf>, <http://www.gpo.gov/fdsys/pkg/FR-2010-11-05/pdf/2010-28050.pdf>

⁵⁹ <http://theregulatorslot.com/tag/safety-regulation/>

overly-simplistic, as the nature of some aspects of an operator’s activities will be most easily overseen with prescriptive regulation while others will be best addressed with performance-based regulation. Still others, such as what is considered to be “safety culture,” are difficult to promote under any type of regulation.

3.3 Four Pillars of Safety Management Systems

Different industries use different versions of safety management systems. API’s SEMS for offshore drilling operations has thirteen elements. IMO expresses its SMS through its IMO International Safety Management Code. This background paper uses the International Civil Aviation Organization (ICAO) framework as it is simple and easily transferrable to non-aviation industries. It contains four pillars.⁶⁰

3.3.1 Pillar 1: Safety Policy

An effective safety policy will provide management and personnel with policy direction, written procedures or rules, management controls, and corrective action processes to maintain safe operations. It will establish senior management’s commitment to continual improvement through measureable objectives and to provide sufficient resources to implement safety actions. It will establish roles, responsibilities, and accountabilities in the organizations safety performance, and it will articulate an enforcement policy.

3.3.2 Pillar 2: Safety Risk Management

Risk management involves a prospective assessment of possible risks and the development of strategies to minimize them. It can either be used to support a decision-making process, or the discovery of new risk information can initiate a risk management process.

Safety risk management consists of five elements:

- 1) System description: establish an understanding of the system sufficient to identify hazards.
- 2) Hazard identification: through a combination of reactive, proactive, and predictive means, identify safety hazards.
- 3) Analyze safety risk: through quantitative and/or qualitative means, analyze the severity and likelihood of the manifestation of hazards.

⁶⁰ ICAO; Federal Aviation Administration, “Safety Management System,” Order 8000.369A., May 8, 2013. <http://www.faa.gov/documentLibrary/media/Order/8000.369A.pdf>

- 4) Assess safety risk: compare the safety risk of identified hazards with safety performance targets and determine the acceptability of the risk.
- 5) Control safety risk: implement risk controls to eliminate or mitigate safety risks.

3.3.3 Pillar 3: Safety Assurance

Safety assurance is a process to determine the effectiveness of risk controls. It consists of data collection—which includes reporting mechanisms, investigation of incidents and accidents, and other monitoring processes such as audits—and data analysis, used to assess safety performance, discover new hazards, and assess the effectiveness of existing risk controls.

Employee feedback is also important in the data acquisition process of safety assurance. We audit for the risks we know—our employees will tell us about the hazards we hadn't considered.

What has traditionally been considered “compliance” is an important element of safety assurance.

3.3.4 Pillar 4: Safety Promotion

Safety promotion activities include training and information systems to aid in SMS implementation. It includes communication internal to the organization as well as to outside stakeholders. The least prescriptive and event-driven of the four pillars, safety culture is generally considered affected by safety promotion.

3.4 Safety Risk Management and Safety Assurance⁶¹

In examining how to incorporate safety into decision-making, we focus on the second and third pillars of SMS. Understanding the interaction between safety risk management and safety assurance is the key to incorporating safety into rate cases and rulemakings, and it is the basis for the language in the bill.

Safety risk management is triggered by one of four events:

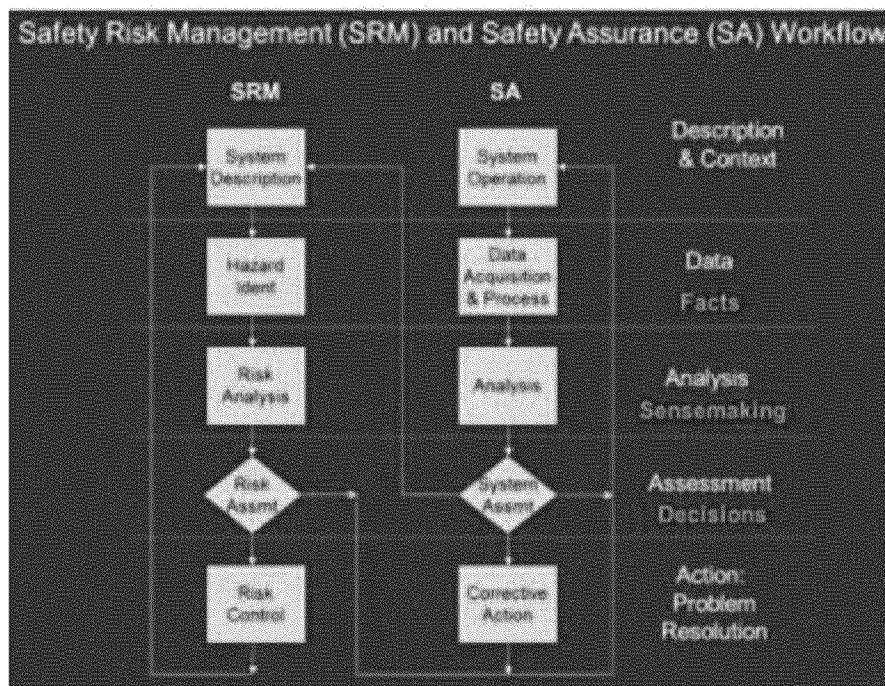
- Implementation of new systems
- Revision of existing systems
- Development of operational procedures

⁶¹ Based on the presentation of Don Arendt to the Pipeline and Hazardous Materials Safety Administration, “Culture, Safety,” August 31, 2013, minute 00:50:50. <http://www.youtube.com/watch?v=4HzxDvTengM#t=3010>

- Additional hazards or poor risk controls identified during risk assurance

The safety risk management/safety assurance workflow then begins.

Any decision-making process can be broken down into five steps. Dr. Arendt talks about buying a car. First, you need to determine what it is you need (description & context). For a car, the need might be determined by the weather and road conditions around where you live, the distance to and from work, and your proximity to mid-life crisis. From there, you might determine what your universe of possible choices might be, and you learn about them—their costs, mpgs, highway and off-road capabilities, and other performance levels (data). Third, you would analyze the choices and how they might fit your needs (analysis). As Arendt makes clear, the analysis or “sensemaking” stage need not be an esoteric or calculator-heavy exercise. Finally, you buy your car (assessment). If your decision requires you to make some other changes to accommodate that new car into your life, such as cleaning out the garage so that you don’t need to subject your new car to the vagaries of avian metabolism or a child’s improving but imperfect field goal percentage around the basketball hoop, you make that accommodation (problem resolution).



Safety risk management follows that same decision workflow. In performing a risk assessment, we decide whether or not the risk associated with the proposed system change is acceptable. If it is, the change is approved and its performance monitored in the safety assurance part of the workflow. If it is not, controls are applied, and we repeat the safety risk management steps to examine the risk with the controls present.

In safety assurance, we monitor the system’s safety performance. We gain data by performing audits, reading reports, soliciting feedback from employees, and investigating incidents, accidents, and “near-misses” if they occur. Periodically, we perform an assessment to determine whether or not the system is performing to an adequate level of safety. If it is, we go back to monitoring the system. Arendt notes that

“a no-defect audit is not a bad audit; that’s what puts us in what I call ‘the happy loop’ right there. But the difference between the top and the bottom is the essence of assurance.”

If an assessment determines that the existing risk controls are insufficient, we either take some corrective action, or begin the safety risk management process to redesign the system.

If the safety assurance workflow looks familiar, it should. Whether enforcing prescriptive or performance-based standards, this has been the traditional process of the regulator. Not restricted to safety, such assurance actions can be used to monitor reliability or compliance with affiliate transaction rules. The bulk of the safety risk management/safety assurance workflow is not new.

What is new to the Commission—and at the heart of SMS—is the connection between the decision-making process on the left and the assurance process on the right. Traditionally, in developing rules, the Commission hasn’t taken information from safety assurance activities to develop a complete description of the system it describes in decisions. Additionally, the Commission hasn’t modified its safety assurance activities to reflect the changing scope of its regulatory activities. The “practical drift” is evident in Commission safety assurance activities as its safety division has tended to audit utilities based on largely unchanging general orders, even while the Commission has been adamant to change the way that energy is delivered to support its policy goals.

The remainder of this background paper will discuss how the Commission can use this safety risk management/safety assurance framework to incorporate safety into its ratemaking and rulemaking processes. First, however, is a word of caution about the way it may wish to use risk.

3.5 About Risk

The standard mathematical definition of risk is probability multiplied by consequence. This can sometimes be appropriate but is not universally. Such a formulation would allow a low-probability, high-damage scenario to be equated with a high-probability, low-damage scenario, and it is not clear that this should be so. It is unlikely, practically speaking, that such scenarios will have anything to do with one another. In fact, a high-

probability low damage scenario may be desirable—these scenarios may in fact be valuable indicators.

In reality, not all risks are comparable quantitatively. Recognizing this, the Transportation Research Board uses the concept of risk triplets, in which risk is a function of the answers to three questions:⁶²

- 1) What can go wrong? (Scenario)
- 2) How likely is it to happen? (Likelihood)
- 3) What are the consequences? (Consequence)

The risk is therefore dependent on the scenario. The likelihood and consequences of each type scenario can often be quantitatively determined, and so risk controls applied for a given type of scenario tend to be easily comparable. Comparing risks across different scenarios—such as the risk of electrocution from a downed wire and the risk of explosion from a basement gas leak—is less likely to generate the consensus of risk comparison that a quantitative approach would presuppose.

Liberty Consulting Group, who examined PG&E’s General Rate Case for electric generation and distribution, question a utility’s ability to develop sufficient data to fully quantify risk:

“In general, the data set for developing a fully quantified risk assessment for the electric distribution system will rarely, if ever, be available. The general nature of system threats, vulnerabilities, and consequences can be defined. Data to quantify the likelihood of the event might occasionally be known. The costs of risk mitigation plans should always be possible. The system impacts of risk mitigation can also occasionally be calculated. A quantification of the safety impacts of the mitigation will rarely be known.”⁶³

Risk, as explored in the subcommittee’s October 28th hearing on safety communication, is more complicated than any of the above quantitative definitions. All public risk is not equal: a family who lives within the potential impact radius of a transmission pipeline and a family with a 12kW distribution line hanging over its backyard will have different opinions of to which limited resources should be allocated. Additionally, the public will have different tolerances for different risks that may not accord with quantitative risk analysis. For example, people generally feel more comfortable with tangible risks they

⁶² Transportation Research Board, *Transmission Pipelines and Land Use: A Risk-Informed Approach*, Special Report 281, National Research Council, p. 55. <http://onlinepubs.trb.org/onlinepubs/sr/sr281.pdf>

⁶³ Liberty, p. 114.

can control, such as the risk associated with driving a car, than with intangible risks that they cannot, such as that associated with nuclear radiation. The Commission is not often in the position to change these perceptions, nor can we be confident that doing so would be appropriate to its role.

For this reason, operators in high-risk industries often use not a “risk-based” approach but one that is “risk-informed.”⁶⁴ While colloquially interchangeable, the implication of a risk-based approach is that it will rely heavily on risk computation, an approach that suffers if under missing or uncertain data. A risk-informed approach values risk data for what it’s worth and fills in the blanks with qualitative judgments based on experience. For the same reason that we no longer rely on compliance with prescriptive standards as a perfect indicator of safety, we should not surrender the experience of veterans in the electric power and gas industry to a cult of data.

In summary, the value of risk analysis is not necessarily to quantitatively minimize the risk. More importantly is to elucidate the risk choices to inform decision-making.

4 Safety in the Rate Cases

4.1 Purpose of the Rate Case

The purpose of a general rate case is to ensure that rates are just and reasonable, in compliance with PU Code §451, a provision almost unchanged since the creation of the Public Utilities Act in 1911, and consistent with case law surrounding the Natural Gas Act of 1938. In the historical case, a utility that felt costs had risen as to make rates too low could file for a rate increase. Should a commission feel rates were too high to be justified by the costs, it could investigate the reasonableness of the utility’s rates. In California, we have formalized general rate case applications for energy utilities to occur on regular intervals.

The statutory mandate for approval of just and reasonable rates in rate-of-return regulation assumes a stasis that does not exist. Utility costs change from the time a utility begins an application to the time it finishes it, change again in the time the application is litigated, and change during the time between rate case applications.⁶⁵ *Hope v Federal Power Comm’n* didn’t offer commissions much direction on how to establish just and reasonable rates, stating that the process used was unimportant and

⁶⁴ TRB, p. 5.

⁶⁵ Ken Costello, “Future Test Years: Challenges Posed for State Utility Commissions” National Regulatory Research Institute, July, 2013, p. 7. <http://www.nrri.org/documents/317330/d9437527-da9d-4b27-be60-d0eb7f6c52ba>

that the effect of a rate order was what mattered.⁶⁶ In that case, Justice Jackson lamented in his dissent that

“We need not be slaves to a formula, but, unless we can point out a rational way of reaching our conclusions, they can only be accepted as resting on intuition or predilection.”⁶⁷

State commissions have developed a set of processes to accommodate rational decision-making under constantly evolving conditions. This commission requires utilities to file general rate cases at specified intervals. Utilities propose rates for a future test year, and intervenors use historical data to assess the reasonableness of the projection. Each rate case looks both forward and backward.

While in theory the Commission could determine just and reasonable rates by examining the entirety of utility operations, such operations are sufficiently complex that, as a practical matter, utilities, ratepayer advocates, and the Commission spend most of their time examining not the reasonableness of a utility’s rates but the reasonableness of its rate increases. The focus is on the changes from the last rate case.

This marginal approach, while perhaps an unfortunate necessity for the purpose of determining rates, is the appropriate means for examining safety in rate cases. The Commission, through the safety assurance work of the Safety and Enforcement Division, already performs most of its safety risk management/safety assurance work outside the rate case. Such is not the case for much of the investigation performed in rate cases, where the rate case is the only venue for other types of management and assurance activities.

The Commission has safety assurance capability, and the work done by the Safety and Enforcement Division performed in other venues should inform the rate case, not be duplicated by it. For this reason, **paragraph (b) of the bill’s new PU Code §750** directs the Commission to focus on incremental safety activities proposed in rate cases.

4.2 Rate cases must be informed by existing safety performance

Safety improvements do not exist in a vacuum. They modify existing infrastructure. While a rate increase or a safety improvement may be incremental, the determination of how safe we want our utility to be is absolute. In order to determine how much more to

⁶⁶ *Hope v FPC*, at 602.

⁶⁷ *Hope v FPC*, at 645.

spend on safety, we need to know to what level of safety we are already subject. The rationale for seeking improvements must be based on existing performance.

Commission staff produce an annual gas and electric safety report, though resources have been diverted elsewhere in recent years, and the format may change in the future.⁶⁸ The Commission has also proposed more reporting requirements on the gas utilities.⁶⁹ As the Safety and Enforcement Division collects more data for its own safety assurance purposes, it could and should share that data on the record at the outset of a rate case proceeding.

The discussion of roles began in section 2.2 of this background paper. It continues here with an exploration of the role of the Safety and Enforcement Division. The Commission has flexibility in determining whether or not the Division should serve in an advocacy role or an advisory role. The Commission can impose ethical walls between staff to allow the Division to perform both concurrently, as it has done in the recent Order to Show Cause investigation of the safety of Line 147.

The language of this legislation demonstrates an intention that the Division will perform an advisory role. The need for the legislation is not that the utility and the parties care too little about safety, but that the Commission and the parties do not currently have the procedures in place to effectively process safety information. As far as possible, the Division should assist in presenting utility safety performance in such a way that it assists the utility and the parties in developing a common understanding of risk so that each is better able to argue the values it presents, facilitating the Commission's decision-making process. IRP supports ratepayer advocate understanding of safety choices:

“The ratemaking staff in the Division of Ratepayer Advocates may episodically challenge the level of spend, but that challenge is not informed by integrity management results the safety staff is auditing.”⁷⁰

Paragraph (a) of the bill's proposed PU Code §750 requires Commission staff to report on the utility's safety performance. In doing so, it performs an advisory role. Safety and Enforcement Division staff should feel free to articulate any problems that it finds pressing but should stop short of proposing solutions. To do so would be to step into an advocacy role. This legislation should not be interpreted to preclude a subset of

⁶⁸ November 18th hearing, minute 02:04:40.

⁶⁹ “Amended Scoping Memo and Ruling of the Assigned Commissioner,” R.11-02-019, May 2, 2013. <http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=64348049>; Staff Proposed Changes to GO-112E, August 15, 2013. https://www.pge.com/regulation/GasPipelineSafetyOIR/Other-Docs/SED/2013/GasPipelineSafetyOIR_Other-Doc_SED_20130815_284175.pdf

⁷⁰ IRP, p. 103.

Division staff from performing an advocacy role in a rate case, but the advocacy role should be clearly delineated from the advisory role. Were Division staff to perform a supplementary advocacy role, it should be based on the circumstances of the case and not by legislative decree.

Paragraph (d) of the proposed PU Code §750 requires the Commission to order staff to monitor utility safety performance in preparation for issuing a report at the commencement of the subsequent rate case. This is more than simply closing the loop. This also offers parties the opportunity to propose what safety information they would like to have in preparation for the next rate case. If the utility proposes a program to reduce the number of leaks (as was the case in PG&E’s 2014 GRC), the parties and the Commission may wish to know whether or not the program is working. This provision is fully consistent with Cycla Corporation’s recommendation that PG&E “develop, track, and report on a set of specific performance metrics designed to measure the safety improvements actually achieved by its proposed activities.”⁷¹

In requiring reporting at the outset of a rate case proceeding, and by the Commission ordering surveillance between rate cases to inform the next rate case proceeding, the Commission will have gone a long way toward fulfilling the requirements of AB 1456 (Statutes of 2012).⁷² The statute codifies, for gas safety, a recommendation of IRP to benchmark data and adopt safety metrics,⁷³ and it also calls for a periodic re-evaluation of those metrics.

Note that both the AB 1456 statute and the IRP recommendation suggest the possibility of rate incentives (or penalties). To explicitly include such a possibility in a general rate

⁷¹ Cycla Corporation, *Evaluation of PG&E’s Gas Distribution GRC Filing*, May 16, 2013, p. vii.
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M065/K397/65397078.PDF>

⁷² PU Code §970. (a) The commission shall perform an analysis of benchmark data and adopt safety performance metrics for pipeline safety.

(b) The commission shall consider the following principles when adopting safety performance metrics:

- (1) Each safety performance metric shall be designed to be an indicator of safety performance.
- (2) Each safety performance metric shall be designed so that it may be reevaluated within a useful timeframe.
- (3) Each safety performance metric shall be designed so that the data inputs to the metric are verifiable.
- (4) The adopted set of safety performance metrics shall be robust enough to serve as a useful indicator of pipeline safety.

(c) The commission shall evaluate a gas corporation’s safety performance using the safety performance metrics adopted pursuant to subdivision (a) and may implement a rate incentive program. The rate incentive program may contain penalties based on safety performance.

⁷³ IRP Recommendation 7.4.2 Upon thorough analysis of benchmark data, adopt performance standards for pipeline safety and reliability for PG&E, including the possibility of rate incentives and penalties based on achievement of specified levels of performance.

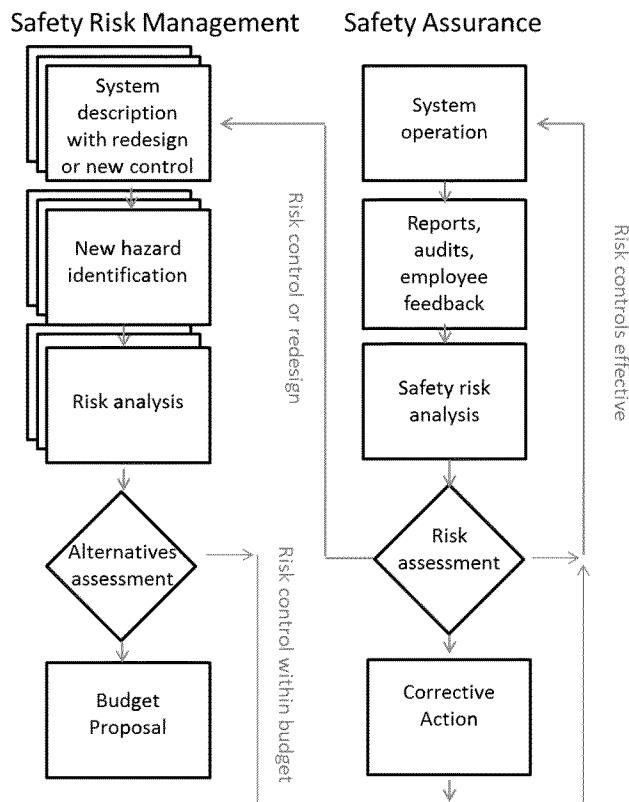
case would require a greater level of comfort with safety metrics than currently exists between parties to a rate case. The recently-required (and constantly evolving⁷⁴) reports requiring gas utilities to list the differences between proposed and actual safety-related expenditures already have the potential to bog down rate cases with disallowance questions. Any experimentation with rewards or penalties for safety are best conducted in more controllable environments than the general rate case.

4.3 Utilities must demonstrate that requests are informed by safety risk analysis

Energy utilities have demonstrated in their filings to the Commission on December 20, 2013 that they use a risk-informed process to address safety risks.⁷⁵ The following diagram generalizes these processes, explicitly including the risk assurance (note, however, that only San Diego Gas and Electric Company discussed use of alternatives analyses).

⁷⁴ PG&E has proposed streamlining the reporting requirements in its recent Gas Transmission and Storage Application, Chapter 13. https://www.pge.com/regulation/GTS-RateCase2015/Pleadings/PGE/2013/GTS-RateCase2015_Plea_PGE_20131219_293200.pdf

⁷⁵ R.13-11-006.



Generally, a utility will start on the top right when examining the adequacy of its safety performance, and it will start on the top left when changing its system in ways not primarily for safety reasons. The safety assurance process on the right will help a utility determine if a process has effective risk controls, has effective controls but they are ineffectively implemented—requiring corrective action—or is ineffectively controlled and may need new controls or need redesigned.

If risk is insufficiently controlled, the utility will examine the system under a number of different scenarios and redesigns. It will identify any hazards such controls or redesigns will bring, and it will perform a risk analysis. The utility will then assess the value of different redesigns or risk controls by not only their safety risk but also their cost, reliability impacts, and other operational considerations. If the risk control or redesign requires incremental funding, the utility will budget it.

IRP faulted PG&E for a failure in this process:

“While the description of risk factors showed insight, there was no evidence that state-of-the-art or even near state-of-the-art risk analyses were done at PG&E to address strategic or policy risk management decisions.”

IRP goes further in its critique:

“Alternatives were selected based on internal PG&E discussion, but lacked insights from any risk analysis of the type described above. In none of the cases was it apparent that a distinct effort was undertaken, other than perhaps making a list, to produce innovative alternatives or a reasonably complete set of alternatives. In none of the cases were there references provided to any probabilities of possible events (e.g. a pipeline explosion on a particular segment of pipe) that could significantly affect consequences. In none of the cases were there descriptions provided of the possible consequences of potentially competing alternatives in terms of public health and safety, environmental implications, economic costs, and reputation implications. In addition, in none of the cases was a presentation provided of the pros and cons of the different alternatives, with or without the information and logic behind them that could have informed top management with the responsibility to make a decision.”⁷⁶

IRP also places responsibility on the Commission to ask for an alternatives analysis:

“The CPUC currently does not require documentation from the operators that thoroughly explains the logic and motivation for addressing or not addressing specific significant risk management issues or for the subsequent choices of alternatives to address those risk management problems. The CPUC also does not require or receive information from the operators about their reasoning for why proposed risk management alternatives pertaining to public health and safety risks are the best of available alternatives or at least good alternatives compared to the other alternatives that could have been proposed.”⁷⁷

The question of the quality of alternatives analysis continues to be relevant. Though not explicitly charged with examining PG&E’s alternatives analysis, both Liberty Consulting Group and Cycla Corporation found room for improvement in PG&E’s 2014 GRC application, though both consultants recognized that the utility was early in its development of risk-informed decision-making and suggested that such analyses would be within the utility’s reach in the future.

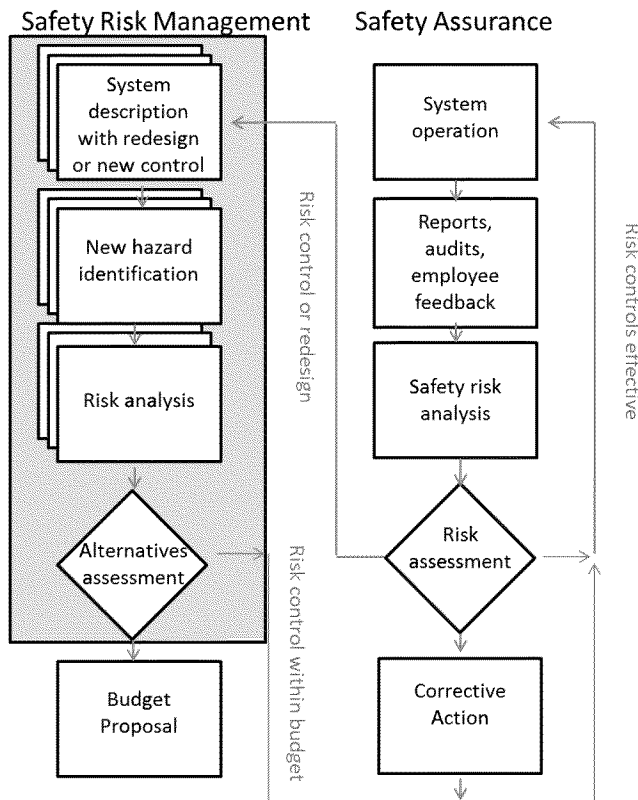
As safety regulation of industries with complex systems requires a focus on process analysis—described in section 3.2—the Commission will need to examine the process by which a utility arrives at an incremental safety expenditure in order to know whether or not to approve it. Much of this work will be done for the Commission in the case of gas operations, as gas utilities must comply with the process-based transmission integrity management program and the distribution integrity management program. Very little

⁷⁶ IRP, p. 56

⁷⁷ IRP, p. 100.

in pipeline operations lies outside these two programs, and what does is not materially different from that which is inside.

Paragraph (a) of the bill’s proposed PU Code §750 requires that Commission staff evaluate the quality of the utility application’s risk analysis and alternatives assessment—the shaded box in the safety risk management/safety assurance workflow in the figure below.



In performing this evaluation, the Safety and Enforcement Division should focus on the process by which the analysis is conducted. Again, the Division is not opining on whether or not enough safety has been included—that is for the utility and parties to discuss and for the Commission to decide—only whether the process the utility used was conducive to effective decision-making. Given this expectation, a utility will ensure that it fully considers safety alternatives as a part of its budgeting process, elevating consideration of safety risk through the ranks of the organization.

4.4 A Commission rate case decision must make safety-related findings that are supported by the record and testable at a later date

A Commission decision is sometimes best read starting at its end. The Ordering Paragraphs, Conclusions of Law, and Findings of Fact set the expectations and understanding by which the decision is based. Safety-related findings demonstrate that the record has been sufficiently developed to decide on safety expenditures. Safety-related findings are necessary for a decision to authorize safety-related expenditures in its ordering paragraphs. Finally, safety-related findings—given the difficulty in predicting safety-outcomes—can at a later time be proven to have been inaccurate. This should not be considered as it is a valuable safety assurance check. If spending for a specific program was supposed to improve safety performance, but the spending did not do so to the extent planned, that is an opportunity for learning—an opportunity that would not be available without the expectation of a safety outcome set in a finding of fact. For this reason, a Commission decision that includes safety should have safety-related findings, as required in **paragraph (c) of the bill’s proposed PU Code §750**.

4.5 What This Legislation Will Not Do

As described in this background paper, this legislation is meant to inform safety decision-making in rate cases as a part of a larger Commission effort on safety. As such, this legislative proposal is meant to address a relatively small subset of the safety work that is performed at the Commission. Here is a list of what the legislation is not meant to do.

1) This proposal will not ensure that a utility asks for enough money to perform safety work

As the focus of the Safety and Enforcement Division’s analysis of the utility’s application will be on its incremental safety requests, the Division will not be advocating for more or less funding. The safety assurance activities of the Division, however, will be monitoring safety performance in other venues—particularly the gas safety plans mandated by SB 705—and such attention will focus utilities on continual safety improvement. One can reasonably expect budget augmentation requests to follow from an effective oversight posture.

2) This proposal will not test for a safety culture

While the rate case’s focus on risk assessment and the mandate to consider alternatives will support a positive safety culture, they will be far from sufficient to do so. The Safety and Enforcement Division’s safety assurance activities will—if implemented well—also support a positive safety culture, but it is not clear what control a regulator has over safety culture. Given the adversarial, legalistic nature of a rate case proceeding, it is

would be unreasonable to propose such a venue as an appropriate one to foster a safety culture.

3) This proposal will not eliminate the tension between increased safety and rate hikes

The proposal does not attempt to reduce the tension between increased safety and increased rates. It does, however, attempt to place that tension on the record so that the Commission may make informed decisions. The tension between the utility and the parties may, however, ease a bit, as the bill attempts to provide all parties will common safety information and a clear set of roles.

4) This proposal does not address security

The bill presented here is based on traditional risk analysis. It assumes that a pipe or an electrical conductor will not change its behavior based on the risk mitigation strategy chosen. This is not the case with human actors. Consideration of security has additional complications not addressed here.

5 Conclusion

During the January 2012 workshop, parties began to separate into two camps. One wanted safety to be considered in a venue outside the rate case process, with the results fed into the rate case. The proponents—particularly utilities and unions—wanted to ensure that safety received enough attention. The other camp—primarily ratepayer advocates—wanted safety expenditures to be considered inside a rate proceeding, concerned that pre-approving safety measures without consideration of cost could cause excessive expenditure or “gold-plating” of the system.

This proposal may in large measure address both concerns, and does so not by means of mediation but by a bottoms-up consideration of how a rate case should be included in the safety regulatory process. In doing so, the proposal relies heavily on a safety management system concept that has evolved over the past two decades in response to learning from accidents in high-risk industries. The proposed legislation limits the safety discussion in a rate case to that which is not already considered in the Safety and Enforcement Division’s safety assurance work. By requiring the Division to submit safety performance information to the rate case, safety needs will receive attention. By requiring utilities to perform an alternatives analysis to justify incremental safety expenditures, ratepayer advocates will be able to bring their values to expenditure decisions.

The proposed legislation also addresses an issue so far largely ignored or misunderstood in public discussion—that money alone will not guarantee safety, and that safety

performance needs to be tracked to incorporate learning into the safety budgeting process. The general rate case process is iterative—each case projects forward to a future test year and looks backward to historical data. Given the limitations in predicting safety outcomes, safety budgeting is well-suited to such an iterative process. Performance-based safety regulation—which focuses on process evaluation and on outcomes—is suited to the rate case process, but that fact should not be construed to mean that data from the oversight of prescriptive regulation is not of value as an input to the rate case.

Safety, while difficult to measure and harder to predict, is manageable through a set of practices that focus management attention in the C-suite, harness learning from the front line, and facilitate information exchange among interested parties. In many respects, it isn't what happens in the rate case that determines a utility's level of safety but the two-way communication that occurs between the rate case and other elements of the Commission's safety regulation. As IRP stated, "The silos between the various disciplines in the agency must be dismantled."⁷⁸

⁷⁸ IRP, p. 103.

BACKGROUND INFORMATION REQUEST

MEASURE NO. SB 900 (Hill)

NOTE: Measures will not be set for hearing until background is received by Committee, so please return this form to Melanie Cain in Room 5046. Our committee rules require that amendments to bills be delivered, in Leg. Counsel form, to the committee 7 days prior to the hearing. A failure to adhere to the committee's rules may result in your measure being pulled from calendar.

1. Who is the source or sponsor of the bill? What person, organization, or governmental entity requested introduction?

Author-sponsored.

2. What is the problem or deficiency in present law which this bill seeks to remedy?
3. What does this bill do?

This bill specifies procedures by which safety is to be considered in rate case and rulemaking proceedings before the California Public Utilities Commission. A document is attached to this background sheet explaining the purpose and requirements of the bill as pertains to including safety in rate case proceedings (proposed PU Code § 750). Background explaining the purpose and requirements for the quasi-legislative section (proposed PU Code §761.1) are not included in this submission, and will be presented to the committee at a later date.

4. What utility service territories or customer service areas are affected by this bill?

As this bill affects California Public Utilities Commission processes, any effects of this bill would be felt in all the gas and electric investor-owned utility service territories.

5. How does this bill affect ratepayers or customers in those territories? (E.g. Will this bill result in rate increases or decreases or shift costs to other ratepayers? If so, by how much?)

This bill has no direct impact on rates. It may affect the process by which the Commission determines the reasonableness of rates.

6. If this measure encourages or mandates specified electricity or gas purchases, or mandates certain service levels or products (for video or telephone service) how does the cost of this purchase or mandate compare to other forms of delivery or services?

Not applicable.

7. Are there any pending rulemakings at the CPUC which concern the policy in this bill? What prior decisions or general orders of the CPUC concern the policy in this bill?

The Commission opened a rulemaking on November 14, 2013 to examine how to change the rate case plan for energy utilities (R.13-11-006), with a focus on addressing how best to consider safety. Energy utilities responded on December 20, 2013 to a series of questions posed in the Order Instituting Rulemaking, and opening comments are due on January 15, 2014.

8. How will this bill affect the workload of the CPUC, the CEC, ISO or any other state agency?

While most of the bill's provisions do not have significant workload implications, the requirement that the Safety and Enforcement Division evaluate the adequacy of a risk assessment and an alternatives analysis in the rate case process will likely increase Division workload. What is not clear is whether this bill requires an increase in workload incremental to that the Commission decision in the proceeding will require.

9. What other bills in the current or prior sessions have been introduced that are similar to this bill?

SB 960 (Leonard, Chapter 856, Statutes of 1996) codified the Office of Ratepayer Advocates and required the Commission to categorize proceedings as adjudicative, ratesetting, or quasi-legislative, among other actions.

10. Please attach copies of any background material in explanation or support of the bill, or state where such material is available for reference by the committee.

Background material is linked as references to the attached background document where possible.

11. Please attach all copies of letters of support and opposition regarding your bill.

Currently no support or opposition.

12. Who is the staff person in your office that the committee should contact regarding this bill?

Tony Marino
Direct: (916) 651-4239
tony.marino@sen.ca.gov

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An act to add Sections 750 and 761.1 to the Public Utilities Code, relating to public utility services.



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THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 750 is added to the Public Utilities Code, to read:

750. The commission shall develop formal procedures to consider safety in a general rate case application by an electrical corporation or gas corporation, including a separate rate case application that considers a subset of the corporation's revenues, expenses, and investments in plant and equipment to establish an approved revenue requirement. The procedures shall include all of the following:

(a) In advance of, or concurrent with, the scheduled submission of a rate case application by an electrical corporation or gas corporation, commission staff shall produce a report on the safety performance of that corporation in those areas in which the corporation's revenue requirement is under consideration. The report shall examine the safety performance of the electrical corporation or gas corporation over a time period no shorter than the period between the scheduled rate case applications. The report shall be entered into the record of the rate case proceeding.

(b) Subsequent to the submission of a rate case application by an electrical corporation or gas corporation, commission staff units responsible for safety risk assessment shall evaluate the quality of the risk analysis of the applicant's incremental safety-related revenue requests, including the quality of the alternatives analysis. The report shall be entered into the record of the rate case proceeding.

(c) The commission, in approving a decision determining the revenue requirements of an electrical corporation or a gas corporation in a rate case proceeding, shall make risk-informed findings as to the safety benefits of incremental funding requests of safety-related proposed expenditures by the corporation.



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(d) The commission, in approving a decision determining the revenue requirements of an electrical corporation or gas corporation in a rate case proceeding, shall order commission staff to monitor the safety performance of the corporation and to prepare a report on the safety performance of that corporation in advance of, or concurrent with, the next rate case application by the corporation.

SEC. 2. Section 761.1 is added to the Public Utilities Code, to read:

761.1. (a) The commission shall develop safety risk management procedures for use in quasi-legislative proceedings. The safety risk management procedures shall assist the commission in determining whether or not a proposed policy or rule change will affect safety. The safety risk management procedures shall ensure the sufficient development of the evidentiary record to support findings with regard to the incremental effect on safety of the proposed policy or rule changes made in quasi-legislative proceedings.

(b) The safety risk management procedures shall include all of the following:

(1) A description of a plant, equipment, or system proposed to be changed.

(2) Identification of the hazards that may be created, eliminated, or modified by the proposed policy or rule change.

(3) An analysis of risks using quantitative or qualitative estimates of the likelihood of hazards occurring in a plant, equipment, or system.

(4) The assessment of risks, which is a decision as to whether a risk is or is not acceptable to the commission.



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(5) The inclusion of risk controls, which may be used to eliminate or mitigate the risks of a proposed policy or rule change. The controls may include any or all of the following:

(A) The redesign of the approach to achieve the policy goal that eliminates or reduces the safety risk.

(B) Incorporation of technological or other devices to reduce safety risks.

(C) The use of warning procedures or devices to alert an actor of a hazardous condition in order to give that actor time to avert the hazard.

(D) Development of procedures or training to manage the consequences of a hazardous condition.

(c) The safety risk management procedures shall ensure the opportunity for the commission to exercise future safety assurance activities, including monitoring, data tracking and analysis, audits, investigations, and enforcement action.

(d) If another state entity holds or shares regulatory authority to ensure safety, including the State Fire Marshal or the California Building Standards Commission, the commission shall consult with that state entity.

(e) The commission shall implement the safety risk management procedures by October 1, 2015.

