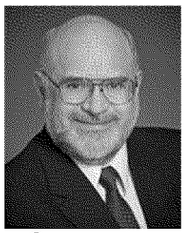
Moving From a Compliance-based to a Risk-informed Performance-based Regulation and What It Means to Regulators and Utilities of the Future

Elizaveta Malashenko
Deputy Director, Safety and Enforcement Division
California Public Utilities Commission

DistribuTECH - January 29, 2014

California Public Utilities Commission (CPUC)

President Michael R. Peevey



Commr. Michel Florio

Commr. Catherine Sandoval

Commr. Carla Peterman

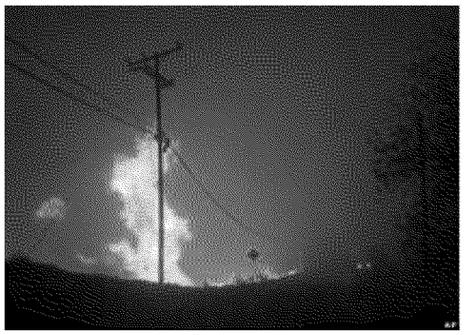
- Headquartered in San Francisco.
- Regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit and passenger transportation companies such as moving companies, limousines and charter buses.
- Responsible for ensuring that consumers have safe, reliable utility service at reasonable rates, protecting against fraud, and promoting the health of California's economy.
- Five Commissioners are appointed by the Governor and confirmed by the California Senate.
- Commissioners make all CPUC policy decisions, meeting usually twice a month to discuss and vote on issues.

Why Safety Regulation and Risk Management Matters

September 9, 2010, San Bruno Pipeline Rupture

- 8 people were killed
- 38 homes destroyed
- 70 homes damaged
- 47.6 million standard cubic feet of natural gas released
- Crater 72 x 26 feet
- 95 minutes to stop the flow of gas and to isolate the rupture site

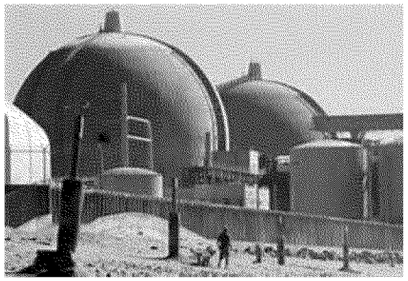
Why Safety Regulation and Risk Management Matters



October 21, 2007
Malibu Canyon Fire

2011 Southwest Blackout

2012 & 2013
Kern Power Plant Incidents



January, 2012
San Onofre Nuclear Plant
Steam Tube Rupture

November 30, 2011
Southern California Wind Storm

California is Transforming the Approach to Safety Policy

Legislature

- Natural Gas Pipeline Safety Act 2011
- AB 56 (Hill): Hydrostatic testing
- SB 879 (Padilla): Safety Accounts
- SB 705 (Leno): Gas Safety Plans
- SB 44 (Corbett): Emergency Response
- SB 216 (Yee): Valves
- SB 1456 (Hill): Metrics
- SB 291 (Hill): Enforcement

CPUC

- Fire prevention rulemaking (2008)
- Rulemaking to update gas safety rules (2011)
- Rulemaking to develop safety rules for high-speed rail (2013)
- Gas safety citation program (ALJ 274)
- Electric citation program (ESRB-4)
- Rulemaking to update Rate Plan
- Risk Assessment Section
- Emergency Management System (SEMS) and Next Generation Incident Command System (NICS)

Utilities

- Operators developed Gas Safety Plans
- Records and operating pressure validation for over 6,700 miles of gas transmission pipelines
- Pipeline Safety Enhancement Plans – pressure testing over 1,000 miles; 300 automated valves
- Pole Replacement Program at Southern California Edison – 12 years; 1.4 million poles

Moving from Compliance-Based to Risk-Informed and Performance-Based Regulation

- Historically safety has been assured through compliance based regulations.
- Compliance simply means conforming to a rule, such as a regulation, policy, standard or law.
- More recently, risk management has been recognized as a method that regulators and utilities can use to develop more robust and strategically focused safety programs.
- This “risk-based” approach to safety regulation focuses on quantifying risk and incorporating this type of assessment and evaluation into utility and regulatory decision making.

At the most basic level, if a regulation specifies conformance with a risk-based standard, there is no conflict between risk management and compliance.

Compliance-Based Regulation and Risk Management Approach

- In some situations, “compliance” has acquired a negative connotation of “checking the box”.
- In this context, risk management is seen as going beyond the existing rules and regulations to address safety issues before they arise.
- However, it’s not “compliance” that’s fundamentally the problem. Rather, there are two issues at hand here:
  - the effectiveness of rules and regulations in mitigating the safety risks that they are intending to address
  - the culture at both regulated entities and regulatory agencies

Without a culture that recognizes safety as the underlying principal for operation and achieving of objectives, no regulation or risk management framework will achieve the needed results.

Typical Deficiencies of Safety Regulation

Without quantifying or assessing risk, compliance becomes prescriptive by nature, rather than proactive, and may not necessarily minimize actual safety incidents.

Some of the key deficiencies of such regulation include:
- Limited to known or experienced risks
- Limited to a single threshold - “Pass/Fail” - decision-making
- Limited incentive for regulated entities to learn and develop safety innovations

While existing regulation has been effective at establishing a floor for safety practices, it is not flexible enough to address evolving standards and conditions or mitigate exposure to unanticipated incidents.

Commission's Steps to Integrate Risk Management into Safety Regulation

- 2012 – Established a risk assessment section
- 2012 – Identified top 17 hazards for gas operators
- 2012/2013 – Performed safety risk assessment as part of a utility rate case
- 2013 – Incorporated risk assessment into the citation program
- 2013 – Opened a proceeding to integrate risk management into ratemaking

In January, 2013, the CPUC issues a paper on risk management titled "**Quantifying Risk: Building Resiliency into Utility Planning**" by Richard White, Elizaveta Malashenko.

http://www.cpuc.ca.gov/

Key Activities of the Risk Assessment Section

- Define risk management processes
- Assess risks of natural gas and electric infrastructure
- Suggest improvements in audits and inspections performed by utility safety and reliability office
- Enhance the compliance regulatory model
- Embed risk assessment into enforcement programs

Risk Assessment in Action – Gas Citation Program

CONSEQUENCE			PROBABILITY				
			Extremely Improbable Once in 35 years	**Possible** Once in 10 years	**Remote** Once every 1 -2 years	**Occasional** 1 -12 times per year	**Frequent** More often than Once a Month
	Catastrophic	**Potential or actual occurrence of:** - Loss of life - Widespread and sustained (≥ 24 Hrs.) loss of service - Property damages of over $ 1 million - Massive environmental effect	3	2	1	1	1
	Critical	**Potential or actual occurrence of:** - Numerous serious injuries - Localized and sustained(≥ 24 Hrs.) service disruption - Damages to critical assets - Property damages between $500,000 - $1 million - Significant local environmental effect	3	3	2	1	1
	Moderate	**Potential or actual occurrence of:** - Single serious injury - Multiple minor injuries - Service disruption(≤ 24 Hrs.) - Property damages between $50,000 - $500,000 - Some local environmental impact	4	4	3	3	2
	Minor	**Potential or actual occurrence of:** - Minor injury - Minimal service disruption - Asset damage - Property damage less than $50,000	5	5	4	4	3 / 4
	Extremely Limited	**Extremely Limited** - Medical treatment for injuries limited to first aid - Extremely limited or non-existent damage to assets	5	5	5	5	4 / 5

Risk Level (RL) Legend:	RL 1: Extreme Risk	RL 2: High Risk	RL 3: Moderate Risk	RL 4: Low Risk	RL: 5 Negligible Risk

Likely Enforcement Action Based on Risk Level

Citations issued to date based on risk assessment principles total over $8 million in the first 5 months of operation.

Risk Level	Risk	Likely Venue	Likely Enforcement Action	Likely Penalty Range
RL 1	Extreme Risk	Commission Action	OII or Resolution	Varies
RL 2	High Risk	SED Citation/Commission Action	Citation Level 1, OII or Resolution	$1,000,000 +
RL 3	Moderate Risk	SED Citation	Citation Level 2, Citation Level 1	$500,000 - $1,000,000+
RL 4	Low Risk	SED Citation	Citation Level 3, Citation Level 4	$0 - $500,000
RL5	Negligible Risk	SED Citation/Informal SED Staff Action	Citation Level 4/Informal SED Staff Action	$0 - $50,000
RL 0	Reviewed, Has No Safety Implications, Not Applicable	Informal SED Staff Action	Informal SED Staff Action	$0

The Next Frontier – Integration of Risk Management into the Ratemaking Process

In November, 2013, the Commission initiated a new proceeding, Risk-Based Decision-Making Framework OIR (R13-11-006)

Topic	***Goal***
Effective use of a risk assessment to evaluate utility requests in General Rate Case applications	*Making safety analysis explicit and a priority for parties and decision makers*
Rate Case Plan documentation and timing requirements	*More efficient management of complexity*
Ongoing monitoring and performance evaluation	*Ensuring effectiveness and proper allocation of funds*

As the Next Step, Commission Staff is Developing a Proposal for Requirements and Case Studies

Requirements

- A robust and flexible process for developing and continuously updating a taxonomy of risks
- Verifiable and accredited methodologies for measuring and ranking diverse risks
- A budgeting process that ranks projects based on expected risk mitigation and program costs
- A transparent risk performance review and evaluation process

Case Studies

- Top-down portfolio risk management
- Bottom-up risk management
- Historical asset performance
- Regional comparison
- Performance, reporting and ongoing assessment

Thank You!

For further information related to utility safety and reliability in California please contact :

Elizaveta Malashenko, Deputy Director, Safety and Enforcement Division
EIM@cpuc.ca.gov | 415-703-2274

http://www.cpuc.ca.gov/PUC/safety/