

Risk Management and the Regulated Utility Industry

Uncertainty in the Regulatory Process

Probability Management Annual Conference

February 18, 2015

San Diego, CA



Agenda

- Introduction
- Historical Perspective of the Utility Regulatory Process
- Risk, Asset and Investment Management
- Evolving the Regulatory Process
- Uncertainty in the Utility Regulatory Process
- Discussion

Introduction

- US Army
 - U.S. Military Academy (West Point)
 - Center for Army Analysis
 - Army Model & Simulation Office
 - Desert Shield/Storm

- Consulting
 - Partner
 - Risk & Asset Management Line of Business
 - Regulatory
 - Portfolio optimization
 - Asset Life Cycle Analysis
 - Analytics



Bottom Line Up Front (BLUF)

- Managing safety, security, and risks has always been a part of operating a utility business
- The regulatory process over the past 150 years has focused on least cost alternatives to manage rates
- **The evolution of a risk-informed regulatory process requires that utilities, regulators/legislators, and consumer advocates...**
 - **Educate** – gain knowledge in managing uncertainty, biased judgment, relationships of risks, and tolerance to risks
 - **Communicate** – dialogue that is focused on an acceptable level of safety and risk management within the context of uncertainty
 - **Implement** – necessary actions to mitigate risks to an agreed tolerable level within the context of uncertainty

Historical Perspective of the Utility Regulatory Process



Understanding the Parties' Perspectives & Roles

UTILITIES

natural monopoly

Mission: obliged to provide safe, reliable, affordable energy supply in a given service territory

Role: preserve system integrity while maintaining financial stability for their shareholders



CONSUMER ADVOCATES

state agencies + some independent groups

Mission: represent the interests of consumers

Role: voice for customers during cases involving:

- Rate increase ▪ Purchased commodity costs ▪ Retail competition ▪ Mergers ▪ Alternative regulations ▪ Rulemakings ▪ Service/quality of service



REGULATORS *appointed by governor or elected*

Mission: protect the public interest by ensuring **safe, reliable, affordable** service

Role: serve as arbiter, making decisions that are reasonable & fair for utilities and customers

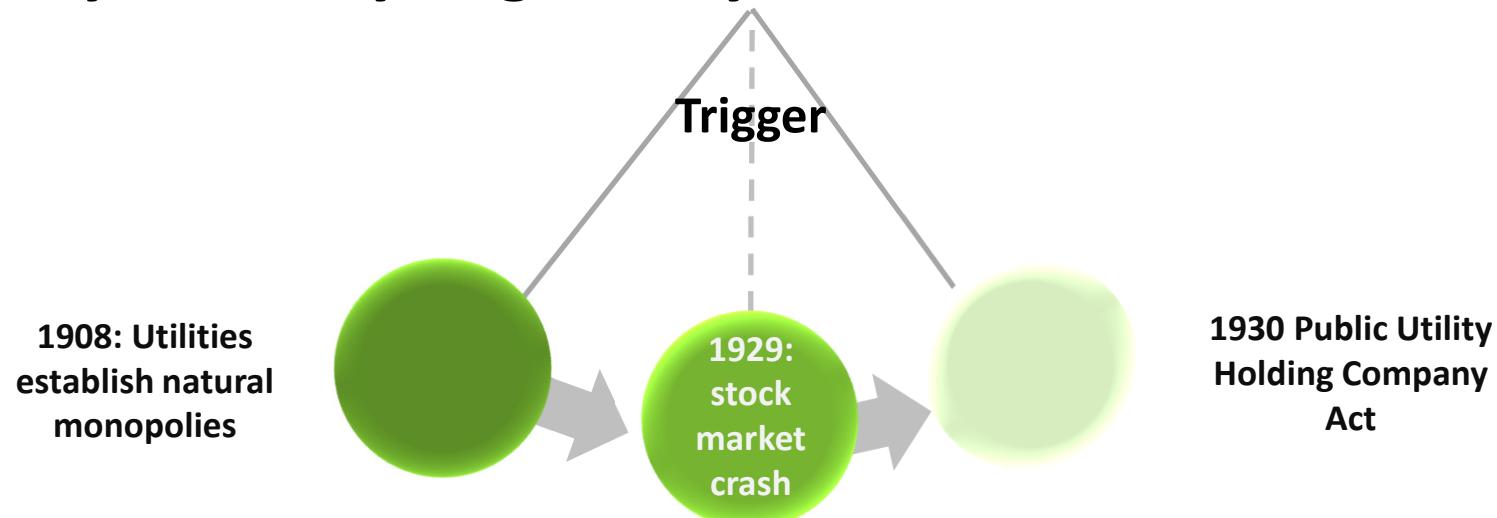
- Certify new facilities ▪ Establish & review rates ▪ Establish quality of service

Regulatory Process

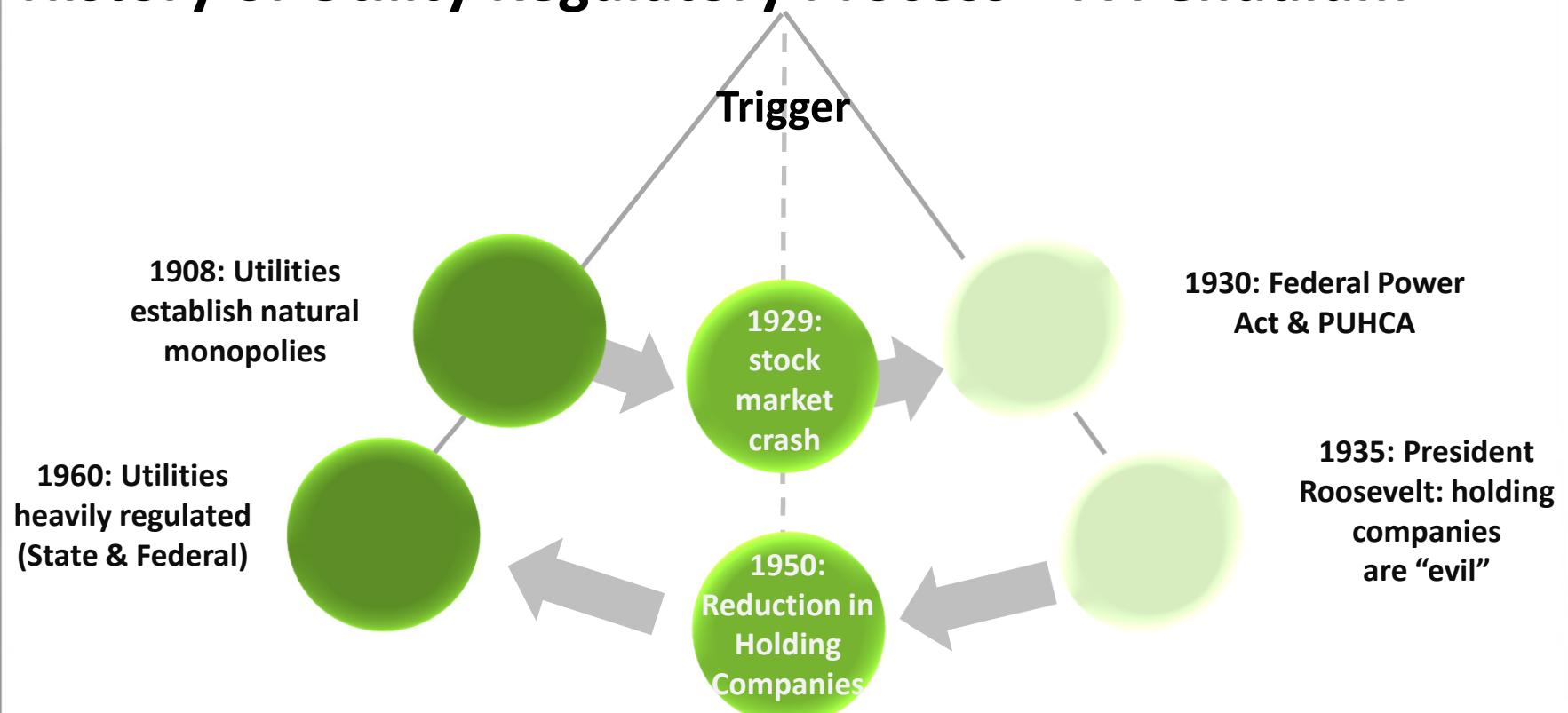
- Litigious and adversarial by evolution and design
- Utilities and consumer advocate positions mediated by an independent arbiter
- ***Historically, litigation has been a least cost alternative***



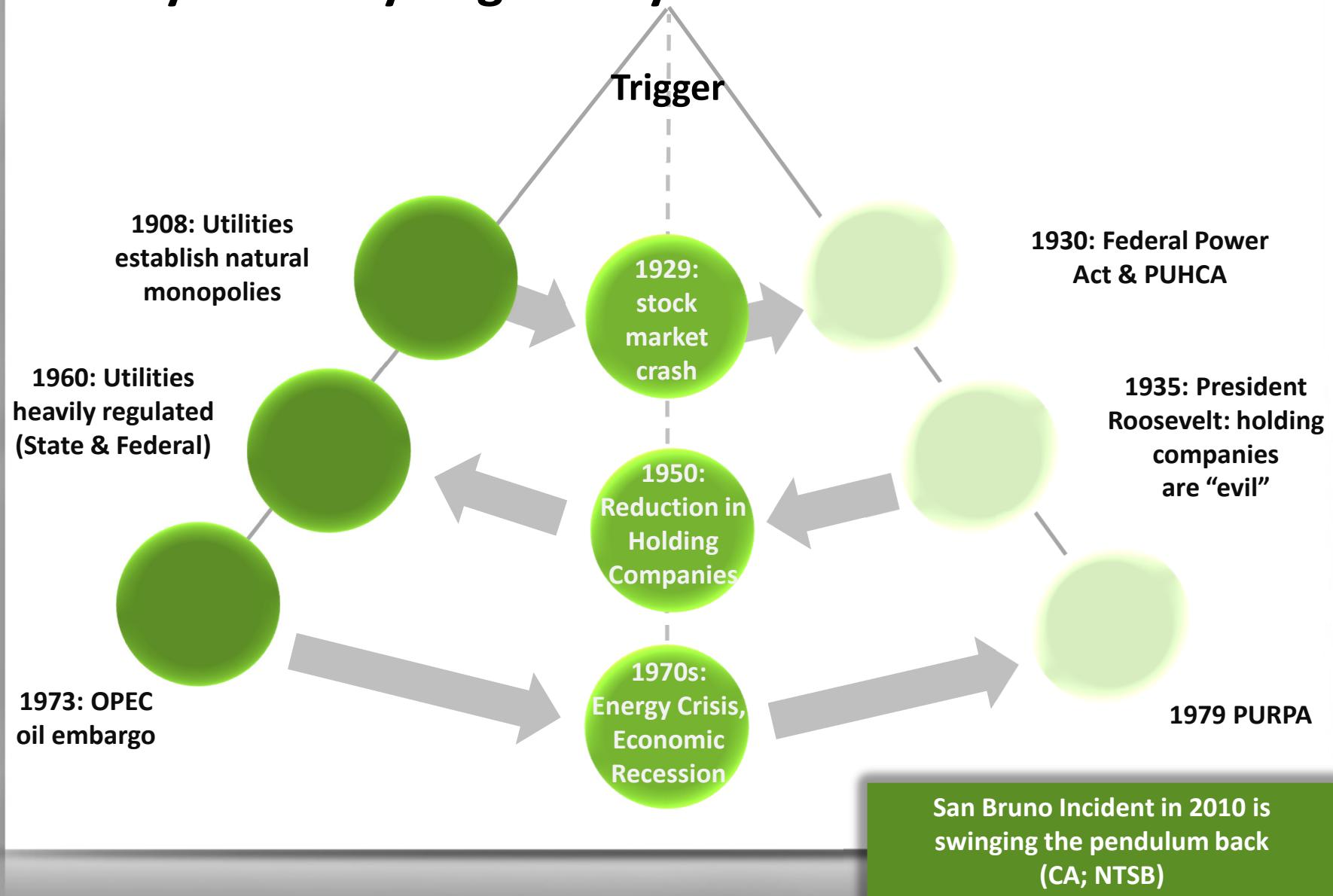
History of Utility Regulatory Process – A Pendulum



History of Utility Regulatory Process – A Pendulum

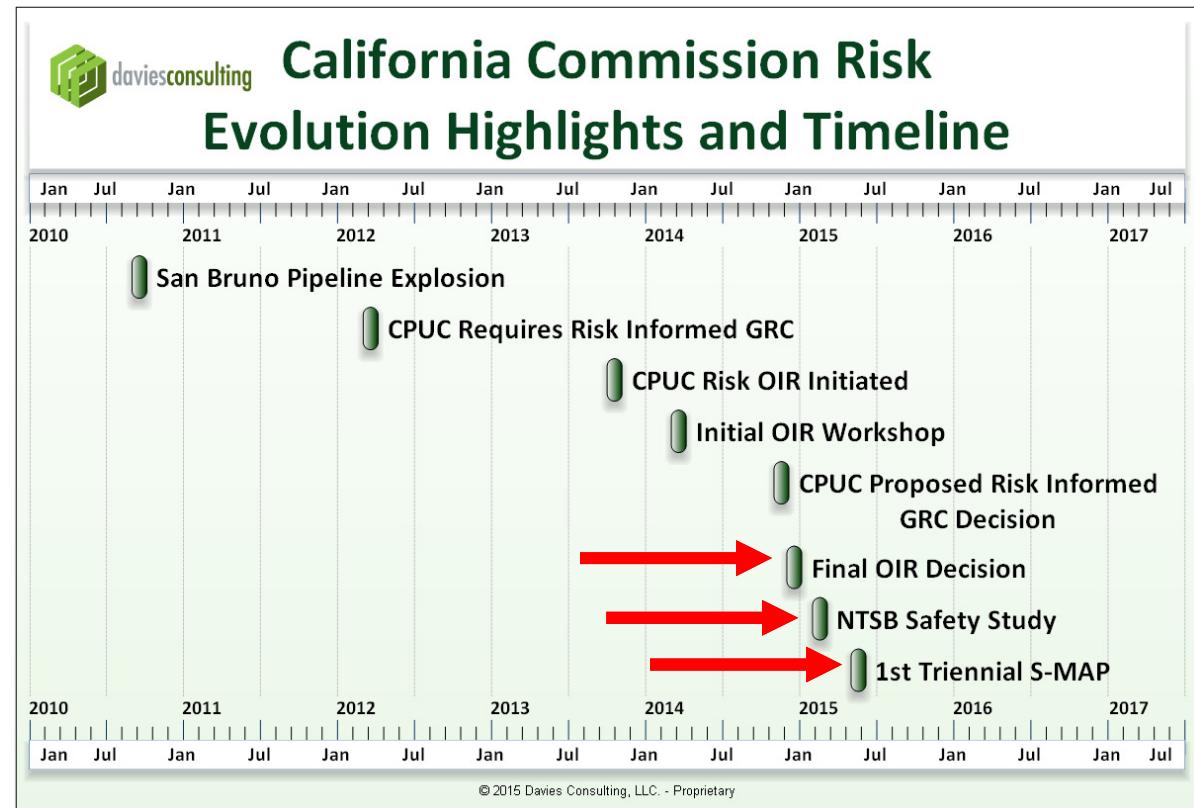


History of Utility Regulatory Process – A Pendulum



Evolving Regulatory Process – California

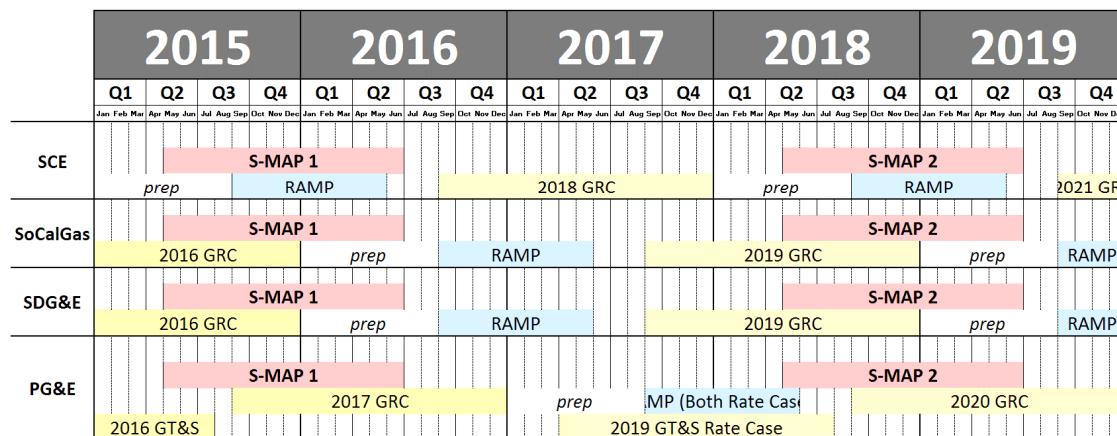
- Evolution of regulatory process affected by critical events
- California Independent Review Panel: all parties must collaborate
- Process continues to evolve: recent NTSB guidelines
 - Directives with respect to probability modeling
 - Directives for state regulators
 - Proactive risk management



New Regulatory Rate Case Timeline for California

- Current litigation is a dialogue on assumptions, algorithms, etc. as opposed to the effectiveness of processes and management under uncertainty
- Parties are moving forward in risk demonstration without a common understanding of risk and uncertainty

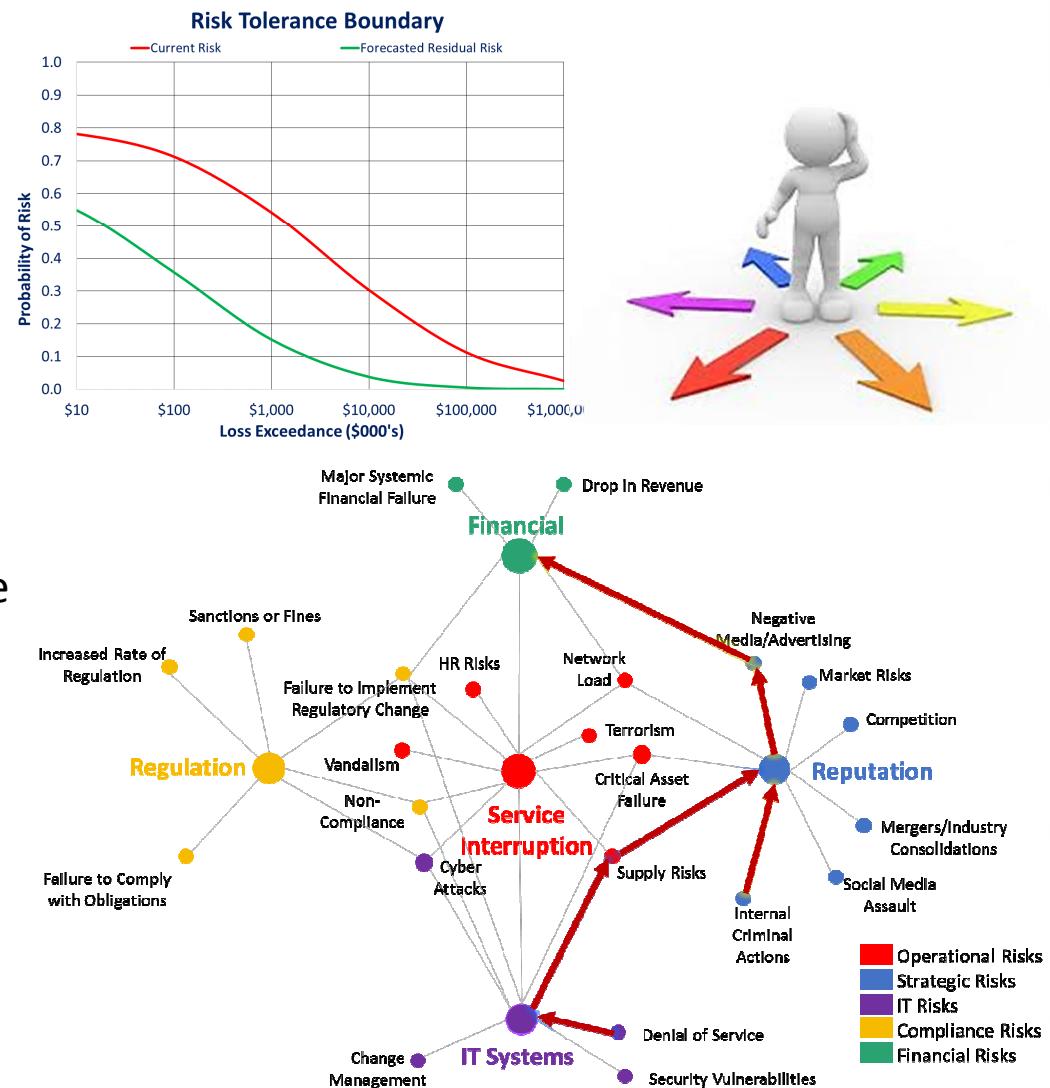
Visual Depiction of CPUC OIR Final Decision Timelines



- Reinforces the adversarial model and litigious nature of rate making process
- Fails to move the needle on risk
- Continual litigation becomes a norm

CPUC Safety Enforcement Division Reports

- Reviews of 2 rate case submissions contained **5 key points**
- Utilities must:
 - Communicate risk profile
 - Account for subject matter expert bias
 - Demonstrate ability to tackle the inter-relationships of risks
 - Produce the portfolio of risk mitigation vs costs
 - Address uncertainty



Utility Risk, Asset and Investment Management

Integration of Key Risk Process Areas



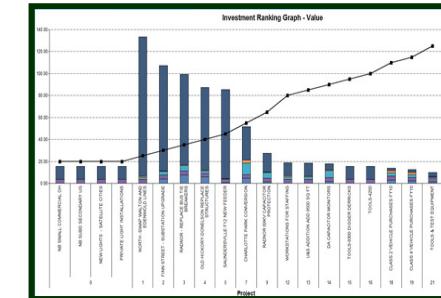
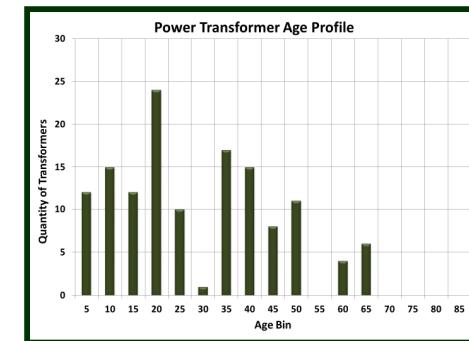
Utility Risk, Asset and Investment Management

- Historic Risk Management
 - Heat Maps/Ordinal Risk Matrices
 - Risks identified and voted on annual basis
 - Not tied to operational asset management risks or investment decisions

- Typical Asset Management
 - Lack of data collection and analysis
 - SME driven management decisions
 - Not integrated into risk management process or decisions

- Typical Investment Management
 - Deterministic modeling/ROE drives budgeting and rates
 - Not integrated with operational or enterprise risks
 - Budgets allocated to business lines through a separate process
 - Often prioritized based upon subjective values versus value/cost

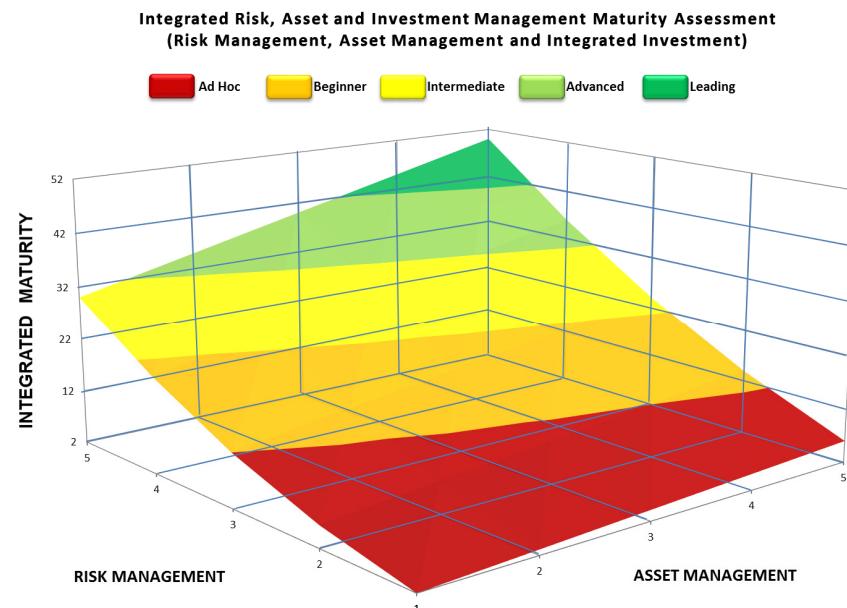
| | | | | | |
|---------------|------|-----|----------|------|----------------|
| Worst Case | 5 | 10 | 15 | 20 | 25 |
| Severe | 4 | 8 | 12 | 16 | 20 |
| Major | 3 | 6 | 9 | 12 | 15 |
| Moderate | 2 | 4 | 6 | 8 | 10 |
| None or Minor | 1 | 2 | 3 | 4 | 5 |
| | Rare | Low | Probable | High | Almost Certain |



The Sum of the Parts

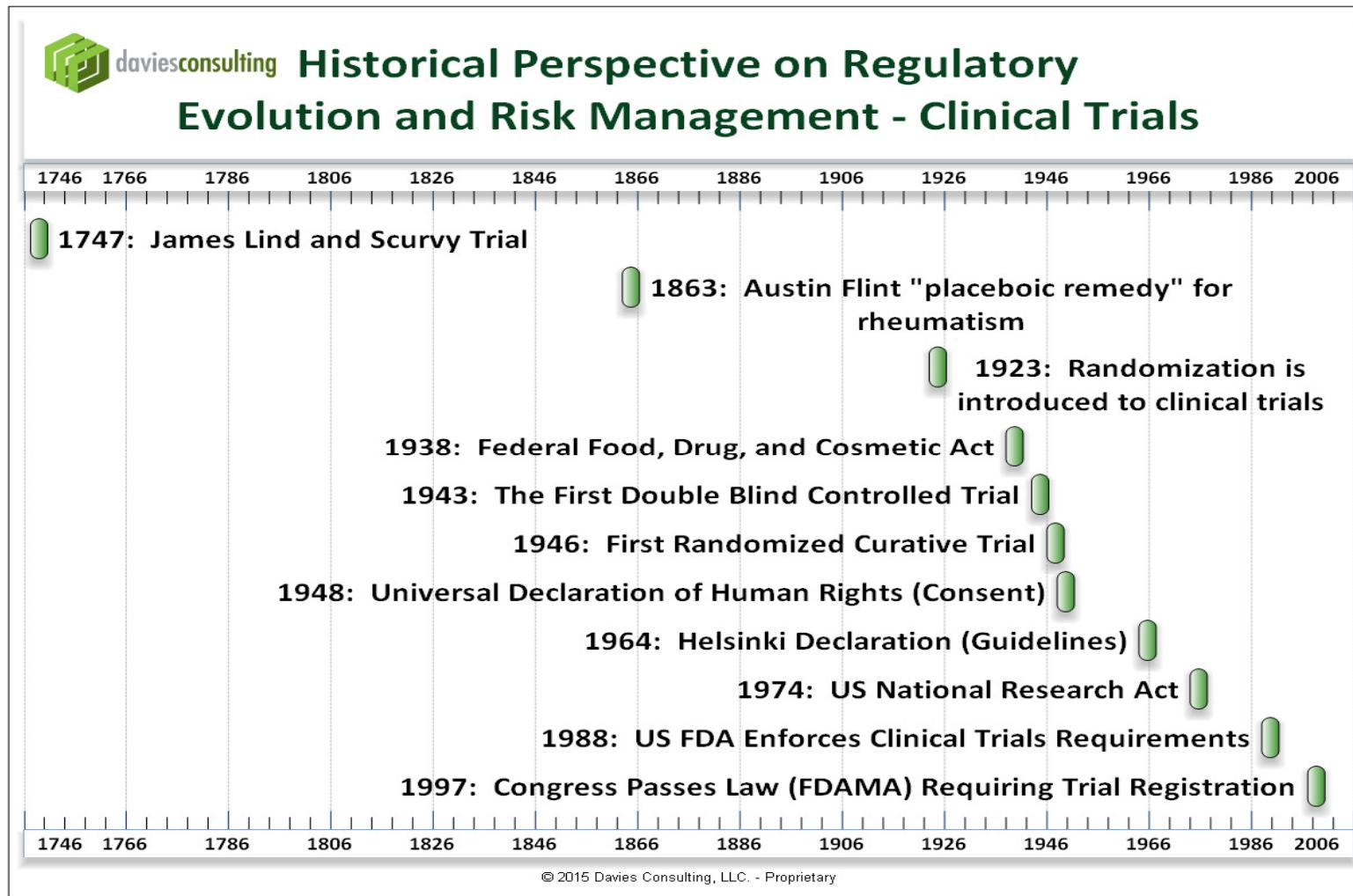
Ultimately, utilities must integrate the critical processes of Risk, Asset and Investment Management

- *Successful* integration MUST:
 - Account for SME Bias
 - Account for Uncertainty
 - Demonstrate Effectiveness
- To be able to achieve the *integration*, utility companies MUST:
 - Educate
 - Communicate
 - Implement



Evolving the Regulatory Process

Example of Risk Management Regulatory Process Evolution



<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3149409/>
<http://www.accordclinical.com/clinical-study/clinical-trials-history/>

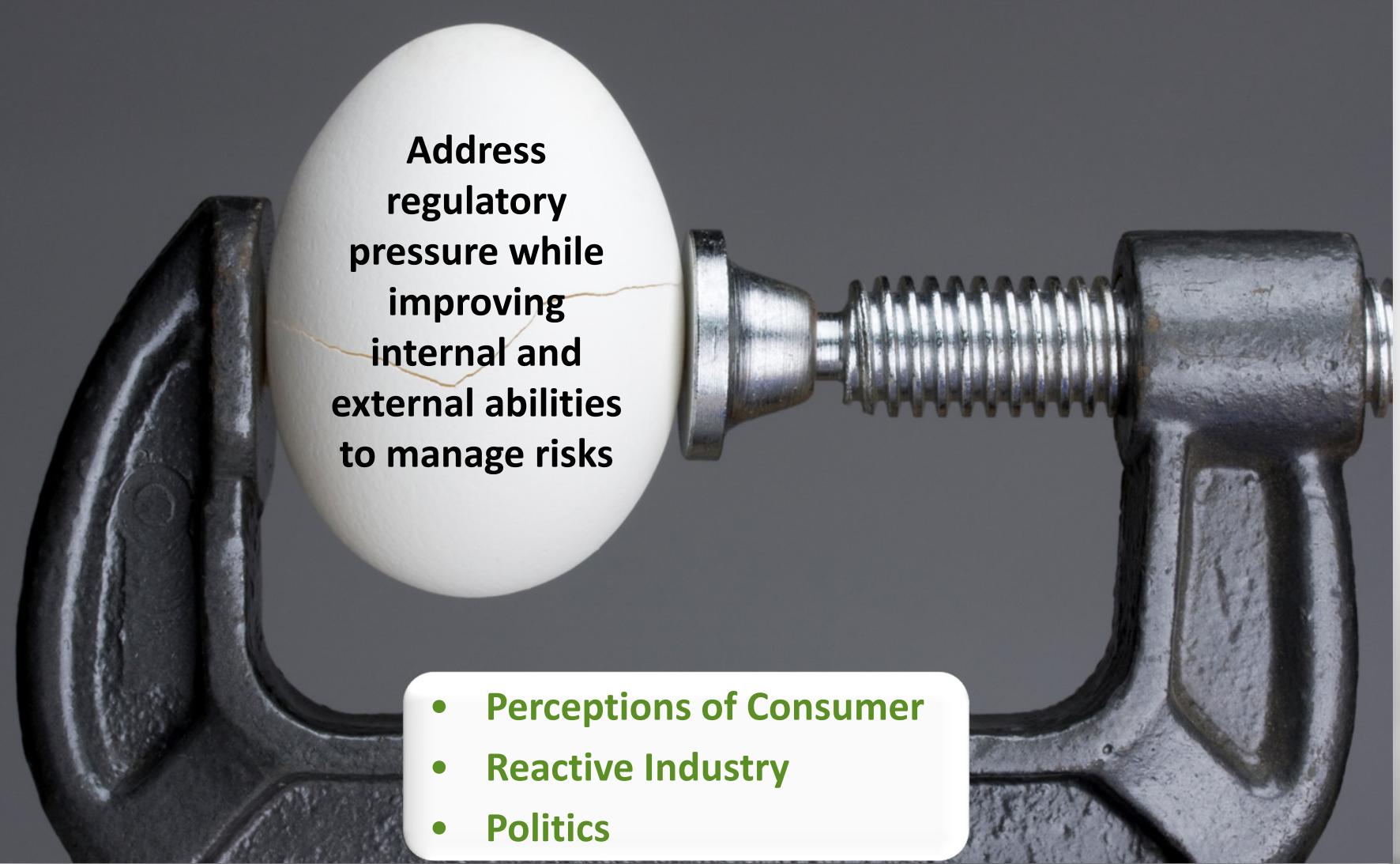
Evolving the Current Regulatory Process



GOAL: a transparent regulatory construct & utility business model that effectively integrates and addresses risk & uncertainty

- **Shared MISSION** – safe, reliable, affordable electricity
- **Shared LANGUAGE** – taxonomy, lexicon and processes
- **Shared LEVEL OF UNDERSTANDING and abilities** – risk and uncertainty
- **Shared ACCOUNTABILITY** – collaboratively established risk tolerance
- **Shared COMMUNICATIONS** – establish buy-in from all stakeholders

The Challenge for Regulated Utilities



Address
regulatory
pressure while
improving
internal and
external abilities
to manage risks

- Perceptions of Consumer
- Reactive Industry
- Politics

Perceptions and Reactive Risk Management

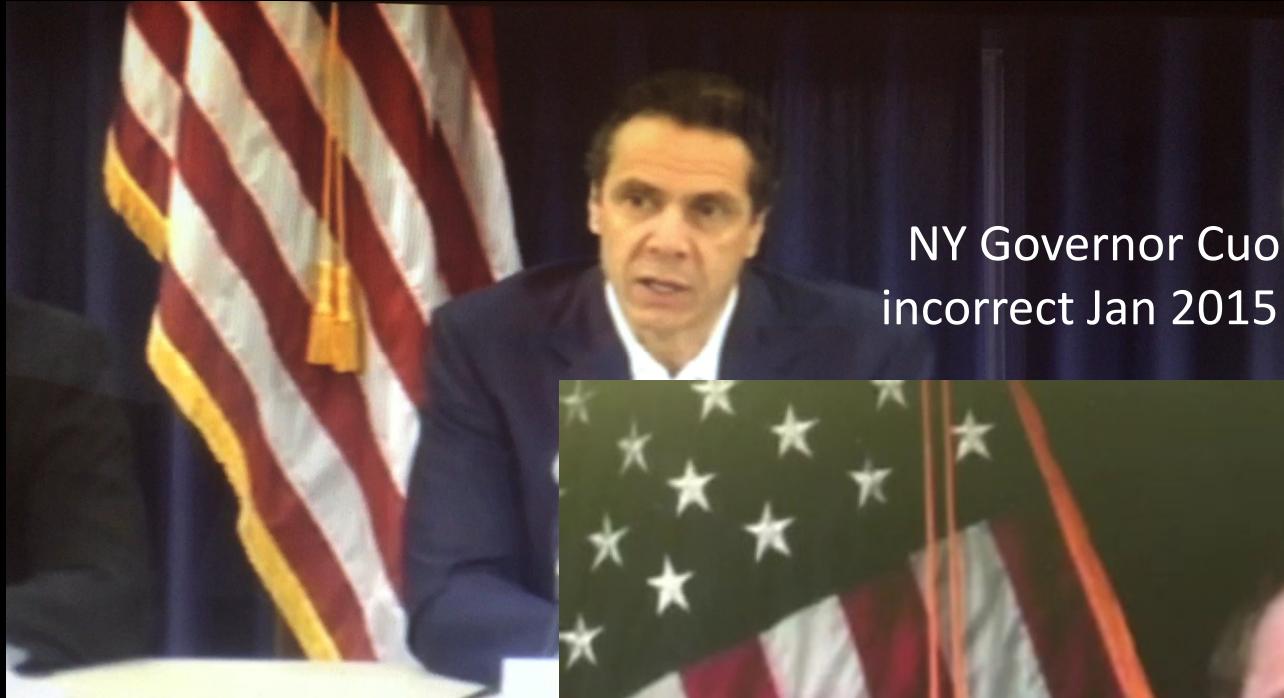
- Fixing problems after they occur is not risk management
- Perceptions vary and affect the response to a perceived risk



"It takes 20 years to build a reputation and 5 minutes to ruin it and if you understand this you will do things differently."
-- Warren Buffett

Politics and Utilities

NY Governor Cuomo's comments after Hurricane Sandy.



http://gothamist.com/2012/11/08/cuomo_they_failed_the_utility_compa.php

NY Governor Cuomo's comments after incorrect Jan 2015 snowstorm prediction



"I always tried to turn every disaster into an opportunity."

John D. Rockefeller

<https://www.youtube.com/watch?v=LjmI4ZxcaPs>

Reality of Evolving Risk Management

FROM



TO



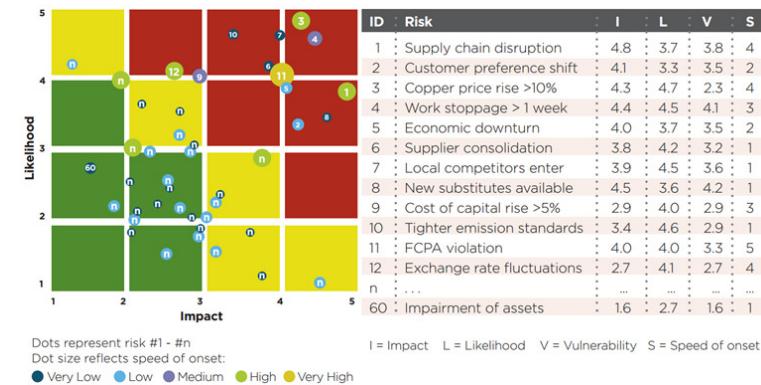
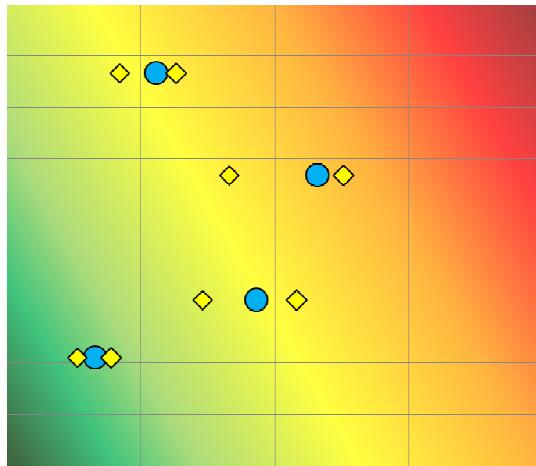
Risk Management “is not a panacea for all of the uncertainties facing companies. Nor is it a guarantee that bad things will never happen.”

-- RIMS

Uncertainty in the Utility Regulatory Process

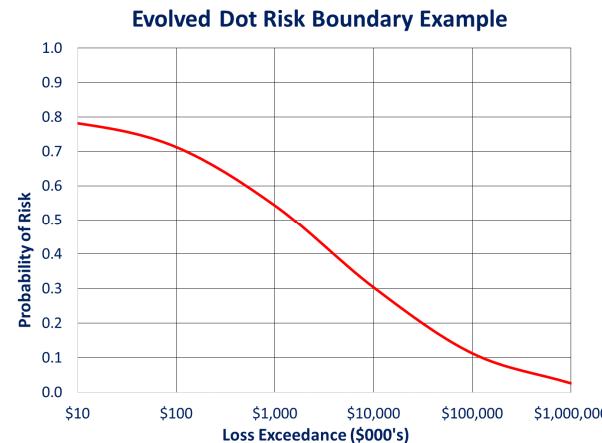
Evolving the Dot

- The matrix “dot” represents a subjective placement of consequence versus probability and is being used by many industries



COSO-ERM Risk Assessment in Practice Thought Paper October 2012, p. 16

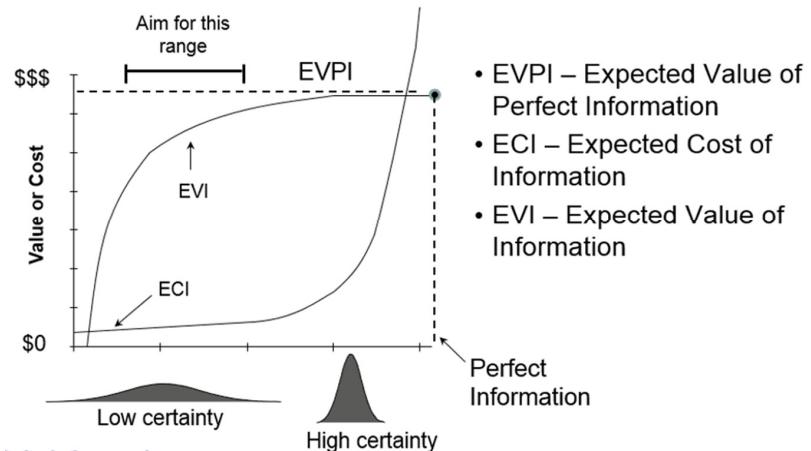
- The “dot” ACTUALLY represents a probability spectrum of consequences that are *uncertain*
- Ultimately, the “dot” represents an infinite collection of “dots” for each risk that provides an understanding of loss versus probability



Educating the industry will not take long.
Getting buy-in from parties with disparate interests will.

Evolution or Excommunications

- Forums like Probability Management are the genesis for educating
- Stakeholders must see the value of
 - Transparency,
 - Repeatability,
 - Auditability; and
 - Documentation
- The concept of Applied Information Economics informs decision making processes
 - Calibrate SME bias
 - Invest in reducing uncertainty
- Ability to communicate the “So What” of probabilistic models is essential

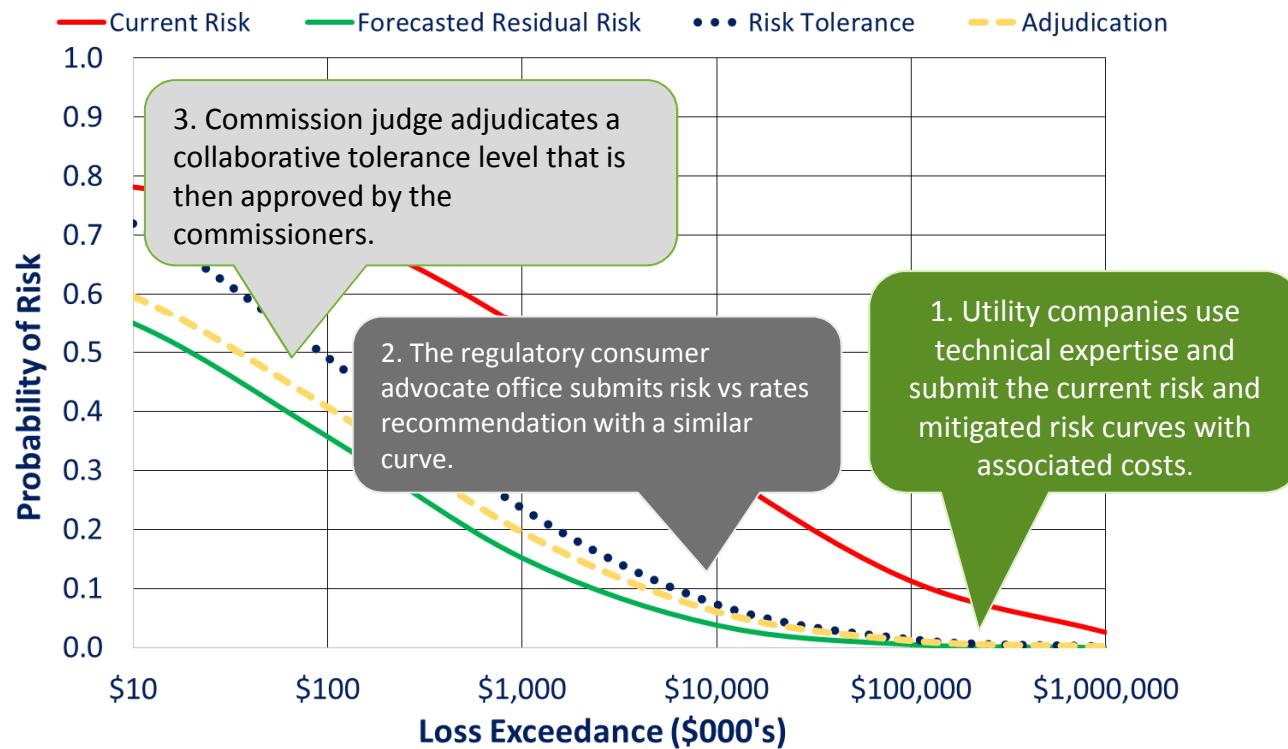


*Applied Information Economics is a copyright of Douglas Hubbard and is used by permission.

Regulatory Process and Roles – Evolution Goal

- Goal: safer, more secure and more reliable system
- Without evolving to a collaborative process, risks and uncertainty cannot be managed

An Evolved Collaborative Risk Informed Regulatory Submission



Conclusion

- Regulators, consumer advocates and utilities need to collaborate
 - it is the responsibility of all parties to manage risk and expectations
- Rates must consider risks and uncertainty and not focus on costs alone
- Utilities, regulators/legislators, and consumer advocates must:
 - **Educate** – gain knowledge in managing uncertainty, biased judgment, relationships of risks and tolerance to risks
 - **Communicate** – have a dialogue that is focused on an acceptable level of safety and risk management in the context of uncertainty
 - **Implement** – take the necessary actions to mitigate risks to an agreed tolerable level in the context of uncertainty

DISCUSSION





thank you

6935 Wisconsin Avenue, Suite 600
Chevy Chase, MD 20815
Tel. 301-652-4535

www.daviescon.com