Risk-Based Decision-Making Framework

Integrating Utility Risk Assessment into the Revenue Requirement Process

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California Public Utilities Commission

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PROGRAM

Introduction

The Rate Case Plan Explained

The Risk-Based Decision-Making Framework Explained

The S-MAP [Safety Model Assessment Proceeding] Explained

The RAMP [Risk Assessment Mitigation Phase] Explained

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The State of Things

Introduction

Why is California concerned with optimizing utility spending on Safety?

Because

Utility spending on safety in California accounts for more than half of utility annual budgets, with a split of about two-to-one for Capital v. O&M expenditures

Utility spending on safety in California is already enormous and continues to escalate

UTILITY DIVE Deep Dive Opinion Podcasts Library Events

Generation T&D Grid Reliability Electrification Load Management Renewables

DIVE BRIEF

California IOUs plan to spend $11B on wildfire prevention in 2021 and 2022 after record-breaking fire season

Published Feb. 9, 2021

Getty Images

Introduction *cont.*

Why is California using a risk-based approach to improve utility Safety?

Because

First addressing high-risk / low-cost / high-tradeoff opportunities delivers more risk-reduction at a lower cost

Lower mitigation costs incurred by utilities translate to lower utility rates, reducing customer burden

Accordingly, the CPUC seeks both to prioritize risks and their controls, and to optimize their selection as projects with the aid of complex mathematics and models that allow for clear rankings

Doing so helps to stretch finite resources and alleviate other constraints, rendering it a reasonable and best-available solution

Besides which, the Commission is obligated to do so by statutory and regulatory requirements

Hard-to-quantify resource constraints would include:

A limited labor pool of qualified experts and tradesmen; and the arduous, lengthy processes that entail drafting new regulations and preparing compliance filings

Introduction *cont.*

Jurisdictional utilities in the electric sector are PG&E, SCE, and SDG&E

California Electric Utility Service Area

Introduction *cont.*

California Gas Utility Service Area

Jurisdictional utilities in the gas sector are PG&E, SDG&E, and SoCal Gas

The Rate Case Plan Explained

The RCP is the CPUC's set of administrative requirements for how large investor-owned utilities are expected to submit and navigate regulatory approval of their General Rate Case (GRC) applications

The RCP is not a single source document but multiple Commission Decisions that may coincide with or supersede one another

Among other things, the RCP describes GRC-application adequacy requirements for all that a utility funding request package is to include, how Commission staff is to receive and dispose of the application, and a timeline for review and approval

In 2014, the CPUC significantly revised the RCP to complete its first major overhaul of GRC requirements for energy utilities in well over two decades

The Rate Case Plan Explained *cont.*

The reform was precipitated by the 2010 PG&E San Bruno pipeline explosion which killed eight and destroyed 38 homes

Soon after the 2010 tragedy event, the California Legislature took action to empower the CPUC to place greater emphasis on utility safety with new utility mandates, statutory powers, and funding

The 2014 CPUC Decision revising the RCP concluded that the GRC served as the appropriate place to start to take all actions necessary to carry out the Commission's existing and expanded safety oversight obligations

In revising the Rate Case Plan when it did, the Commission moved to swiftly promote public safety by introducing an enhanced level of outside scrutiny into utility operations, tying evidence of utility risk-management progress to utility revenue-request approval

The Rate Case Plan Explained *cont.*

To enable such an ambitious goal, the Commission first needed to put in place new regulatory requirements; specifically, a risk-based decision-making framework that would be, “rational, well-informed and comparable to best industry practices”

The 2014 CPUC Decision modified the existing RCP to incorporate a risk-based decision-making framework into the GRCs for the large energy utilities

RDF issues accounted for the better part of the content forming the 2014 Rate Case Plan Decision, greatly expanding the scope of the RCP well beyond simply GRC nuts and bolts to enable it to serve as linchpin for California’s strategy for safeguarding against future energy-utility-spawned catastrophe

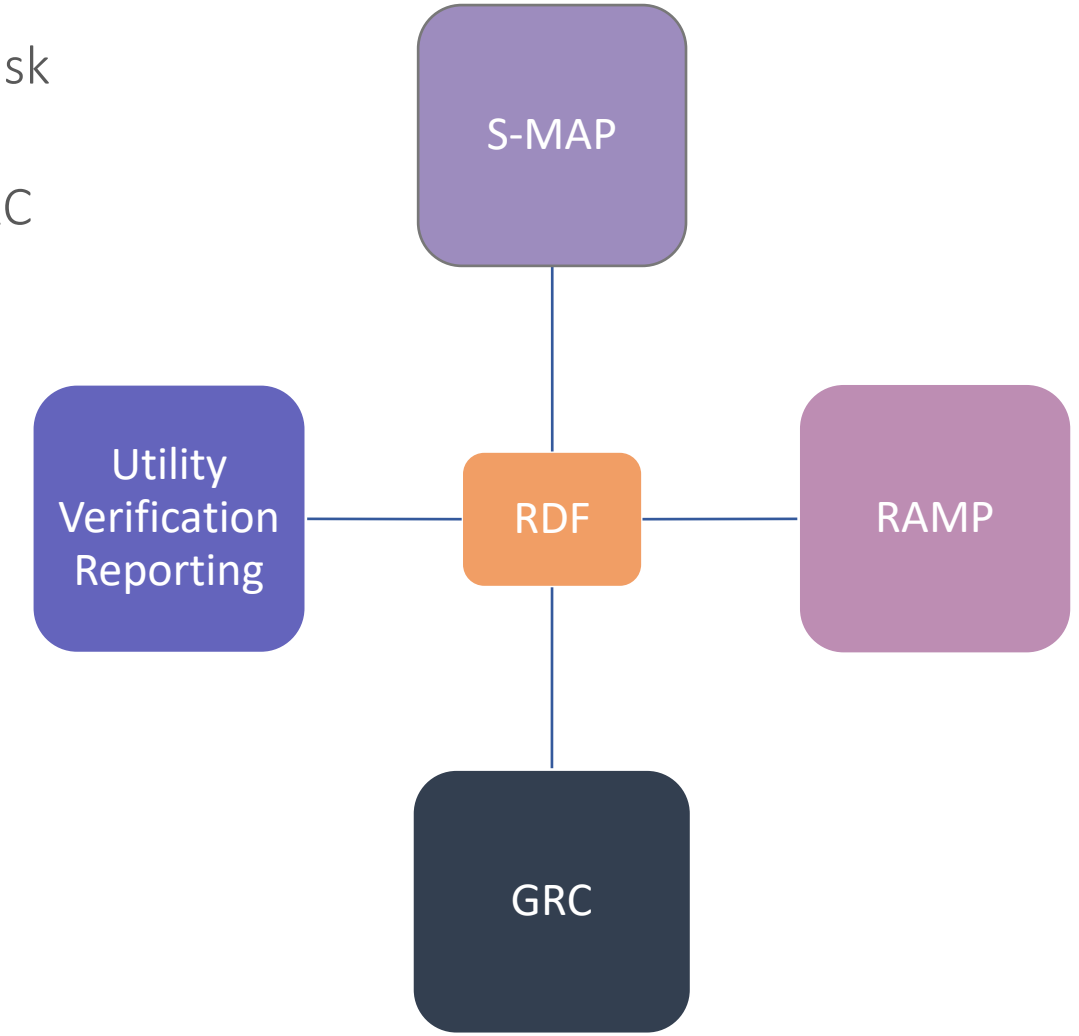
The Risk-Based Decision-Making Framework Explained

The RDF introduced three new component risk-related compliance tracks by which to inform future GRC applications:

- **an ongoing rulemaking process** to serve as forum for utilities to propose and refine their approach to risk assessment (the *Safety Model Assessment Proceeding* or S-MAP)
- **a cyclical review track** for utilities' risk disclosure reports quantifying things like expected consequences and mitigation spending (the *Risk Assessment Mitigation Phase* or RAMP)
- **a verification mechanism** having utilities submit annual compliance progress reports describing items like risk mitigation spending and how forecasted expenditure levels compare to actual dollars spent

Risk-Based Decision-Making Framework Explained *cont.*

Figure showing risk management processes informing the GRC



Risk-Based Decision-Making Framework Explained *cont.*

Figure showing those California utilities fully subject to RDF requirements

*** Sempra Company Utilities**

The S-MAP Explained

The Safety Model Assessment Proceeding establishes risk assessment expectations and policies, in part, by comparing approaches, innovations, and capacities among California's four large utilities in their individual responses to existing RAMP obligations

The S-MAP closely considers the integrity of utility risk models within a forum populated and advanced by expert parties who serve on related working groups to spur consensus-based solutions and third-party proposals

The first S-MAP proceeding began in 2015, by requiring the large energy utilities to submit applications describing their initial risk models

The first S-MAP proceeding concluded in 2019, after yielding three CPUC Decisions, incrementally expanding standards and expectations as the Commission, utilities, and intervenors commensurately grew their risk assessment capacities

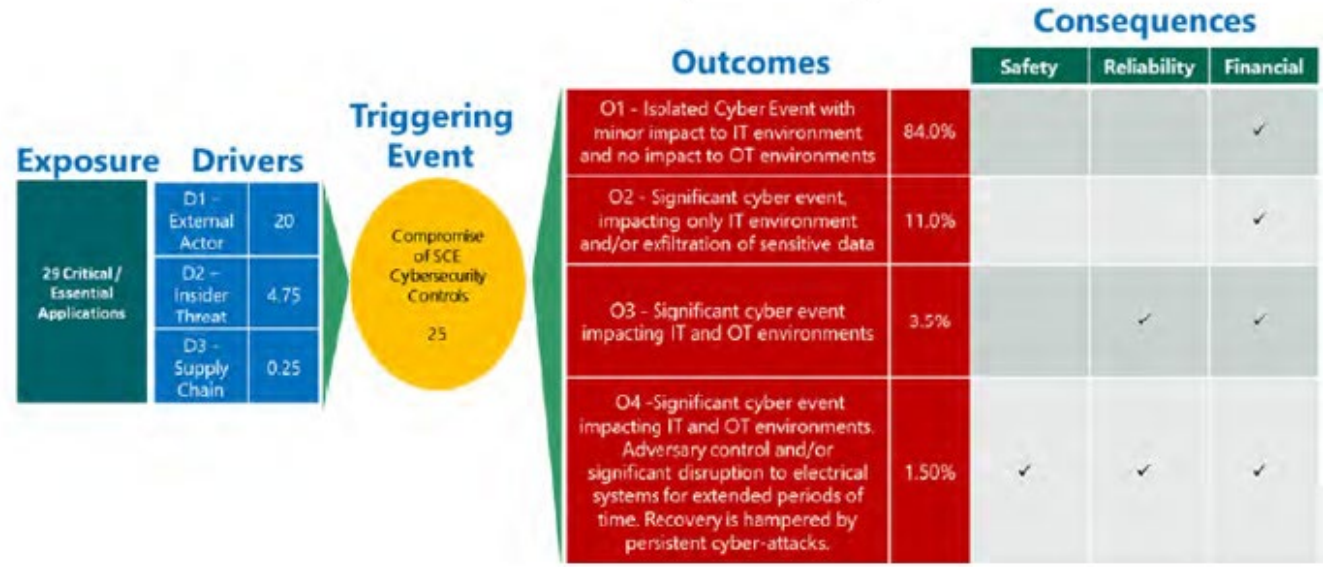
A second S-MAP proceeding is in progress; having begun in 2020, it is expected to consist of multiple phases spanning years and yielding various CPUC Decisions

The S-MAP Explained *cont.*

Figures showing risk model as a diagram of multiple causation factors resulting in various potential outcomes

BOW TIE DIAGRAM AS CONCEPTUAL SCHEMATIC

BOW TIE DIAGRAM AS APPLIED BY SCE, 2022 RAMP, CYBER ATTACK RISK CHAPTER



The RAMP Explained

A **Risk Assessment Mitigation Phase** report is a major regulatory compliance undertaking within the larger effort of GRC ratesetting

A **RAMP** serves to verify that the gas or electric utility has adhered to RDF and S-MAP expectations

A RAMP report has a utility present perhaps a dozen of its most-significant operational safety risks and defend its approach to mitigation measures and proposed spending levels

RAMP proceedings allow intervenors to question a utility's approach to reducing safety risk and offer alternatives prior to a project spending request being formally submitted for funding authorization as part of a GRC application

RAMP proceedings began in 2016, with each year generally addressing a single utility RAMP report within a RAMP application

The RAMP Explained

TY 2021 GRC

Authorization of funding for new 4-year cycle

Attrition years 2022-2024

- *Test Year 2021 GRC begins, originating with 2018 RAMP*
- *2019, GRC application filed*
- *2020, GRC approved with effective date of 2021, ending 2024*

2022 RAMP

Application submitted and vetted

Informing TY 2025 GRC

- *Significant analysis and stakeholder vetting*
- *To inform utility risk spending for years 2025 thru 2028 within TY 2025 GRC application*

2023

TY 2025 GRC application submitted

Submittal expected May 2023

- *2022 RAMP closed out*
- *Any concerns identified within proposed utility risk spending or risk model addressed here, within TY 2025 GRC application*

2024

TY 2025 GRC application approved

Approval expected May 2024

- *2024, GRC approved with effective date of 2025*
- *Revised risk model, remedying any deficiencies, adopted as part of GRC*

TY 2025 GRC

Authorization of funding for new 4-year cycle

Attrition years 2026-2028

- *Test Year 2025 GRC begins, originating with 2022 RAMP*
- *2023, GRC application filed*
- *2024, GRC approved with effective date of 2025, ending 2028*

2026 RAMP

Application submitted and vetted

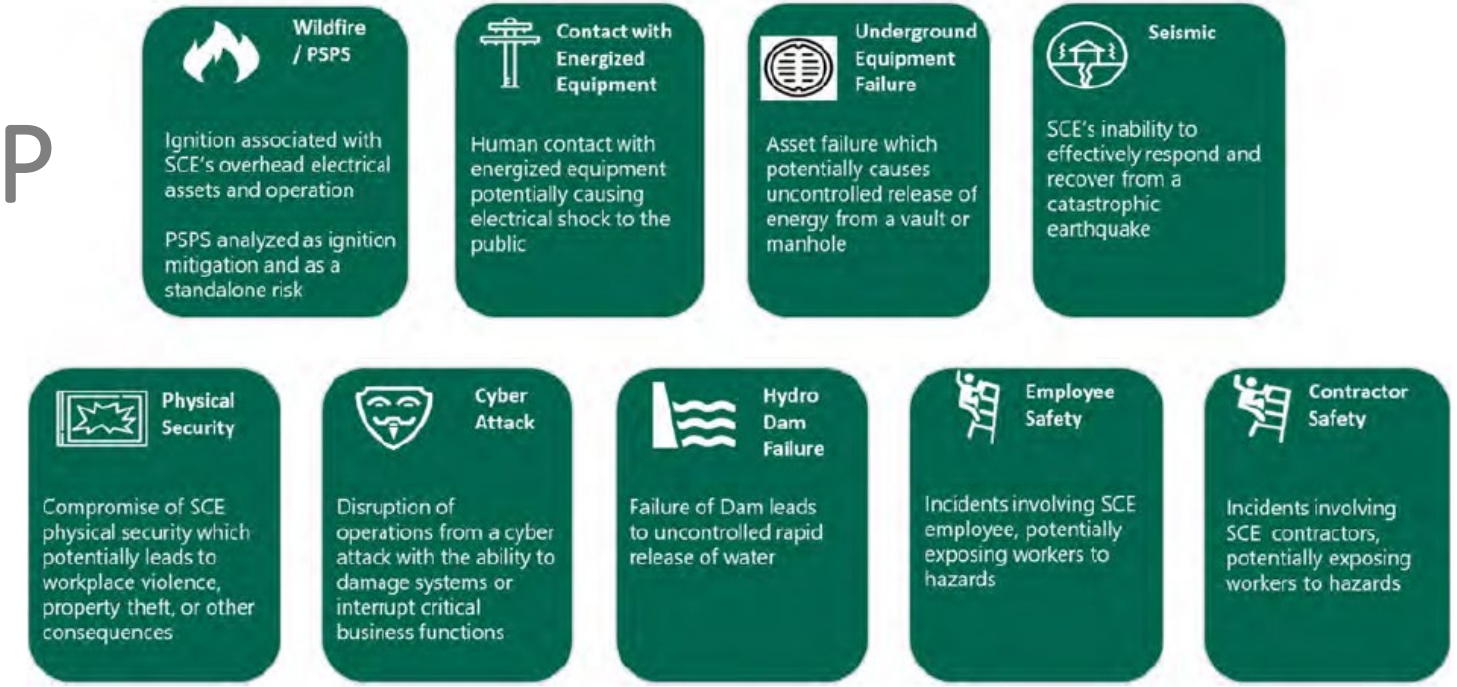
Informing TY 2029 GRC

- *Significant analysis and stakeholder vetting*
- *To inform utility risk spending for years 2029 thru 2032 within TY 2029 GRC application*

2022 RAMP PLACEMENT IN ONE UTILITY'S GRC ITERATION

The RAMP Explained *cont.*

SCE 2022 RAMP Primary Risks



Additional Identified RAMP Risk Considerations

- Battery Energy Storage Systems
- Climate Change
- Transmission and Substation Assets
- Nuclear Decommissioning (*i.e.*, SONGS)
- Widespread Outage

Key Takeaways

- The RAMP process has served to elevate and prioritize safety
- The RAMP remains an incomplete work-in-progress cost-benefit analysis tool
- The RAMP requires further refinement
- Among other things, the RAMP could be improved to inform safety objectives -- and the massive risk-mitigation spending they require -- in the context of other sweeping State initiatives such as decarbonization
- At present, the rapid clip at which utility safety-related risk mitigation expenditures are growing points to an unsustainable trend

Key Takeaways *cont.*

- There is a need to improve standards for utility RAMP filings, with uneven quality from risk to risk and from utility to utility
- A decade into California's effort to make use of a risk-based decision-making framework, substantial work remains to be done to seamlessly integrate the RDF into utility General Rate Cases
- The RDF and RAMP process have demonstrated themselves to be replicable problem-solving approaches for application by other agencies
- California's newest safety agency, the Office of Energy Infrastructure Safety, employs the Commission-derived framework in carrying out its functions

The State of Things

- **Newly-prominent risks** with emerging methodologies and models include Wildfire and Climate Change impacts
- These risks have accelerated in importance as accumulated loss and increased incidence mount, each year witnessing more destructive and severe events
- **Special challenges** surrounding these risks include the absence of reliable long-term trend data or an established industry national-standards organization
- The Commission and the utilities have responded in part with more emphasis on risk granularity, allowing for a finer-level approach to identifying and controlling risk

The State of Things *cont.*

- Such grouped subcategories of utility hardware having generally uniform risk characteristics are referred to as “tranches”
- Additionally, subject risks themselves are being segmented into component parts to allow for a more custom approach to the problem
- **Wildfire risk** is a clear example with California’s three tiers of wildland fire-threat areas assigned to signify likelihood and severity of consequence
- California electric utilities are newly required to create a new risk category for planned power shutoffs, a rationed-deployment safety tool that premises that de-energization prevents Wildfire by precluding ignition

The State of Things *cont.*

- **The Commission** recognizes the need for continuous improvement and constant refinement and has responded accordingly
- **A second S-MAP** proceeding now in progress has yielded one CPUC Decision to date
- **Gaps and concerns** identified in this presentation and its companion staff White Paper are expected to be considered, if not addressed, by the second S-MAP proceeding

Questions?