

R.20-07-013, Phase 4, Workshop #2: Pre-Workshop Planning Questions

October 30, 2024

Risk Tolerance

Description of the Issue:

The instant Order Instituting Rulemaking for the Risk-Based Decision-Making Framework (RDF) Proceeding (the OIR) initially asked if the Commission should adopt a risk tolerance standard or an ‘As Low As Reasonably Practicable’ (ALARP) framework.¹ The ALARP Framework was first discussed in a Staff White Paper in Phase 1 of A.15-05-002. D.16-08-018 noted that the Commission first needed to establish a comparable quantitative and probabilistic risk framework for use across all utilities before an ALARP or risk tolerance approach could be established.² The RDF provides the framework through which the Commission can now consider the need for risk tolerance and ALARP frameworks. Within the RDF, risk tolerance is currently defined as:

“Maximum amount of Residual Risk that an entity or its stakeholders are willing to accept after application of risk Control or Mitigation. Risk Tolerance can be influenced by legal or regulatory requirements.”³

In more practical terms, risk tolerance is the residual amount of overall risk that is deemed acceptable to remain in a system managed by the utilities (e.g., the electric grid, natural gas pipeline infrastructure, etc.) after incrementally reducing risk (i.e. implementing Controls and Mitigations) weighed against the costs needed for that incremental risk reduction. By overall residual risk, we are referring to the total risk managed by the utility and not just the residual risk that is presented in a single Risk Assessment and Mitigation Phase (RAMP) or General Rate Case (GRC) filing. A standard method is needed to integrate risk tolerance into the RDF and inform future RAMP and GRC filings.

Methods for risk tolerance thresholds can be established by regulators and these methods can include placing spending caps on risk Mitigations.⁴ Without such regulations, utilities implicitly set their own risk tolerance standards. We are concerned that a risk tolerance goal that is too high or too low will yield suboptimal outcomes for ratepayer safety or ratepayer costs, respectively. In response to both the Phase 2 Staff Proposal and Proposed Decision, many Parties expressed a desire to establish risk tolerance thresholds in subsequent phases of this proceeding, with guidance from the Commission. In the Phase 3 Scoping Memo, the Commission noted Safety Policy Division’s retention of a technical consultant to assist with the topic of risk tolerance and deferred consideration of the topic until Phase 4 of this proceeding.⁵

¹ R.20-07-013, at 23.

² D.16-08-018 at CoL 14.

³ D.24-05-064, Appendix A, at A-5.

⁴ Considerations of a spending cap on mitigations would need to focus on uncertainty associated with the data used within risk models, which could be addressed through sensitivity analysis. See also the discussion of simple optimization and the concept of “as low as reasonably practicable” (ALARP), as discussed in the Order Instituting Rulemaking (OIR) for 20-07-013 at 21-11 and 29-33.

⁵ Phase 3 Scoping Memo at 3.

Overall Residual Risk

Description of the Issue:

As part of their RAMP filing, the utilities are required to provide graphics of historical progress on risk reduction over the last two RAMP cycles for each enterprise risk addressed in a RAMP or GRC filing.⁶ In order for the Commission to evaluate a utility's progress towards a risk tolerance standard, the utilities must present their respective overall residual risk for each enterprise risk and include the historical progress of risk reduction for every RAMP cycle to date. Within RAMP and GRC filings, the utilities develop mitigation programs based on the estimated GRC Test Year Baseline Risk. The amount of risk remaining after implementing the mitigation programs authorized by a GRC decision that reduces the GRC Test Year Baseline Risk would be the residual risk only within the scope of that GRC application. Currently, the RDF does not require the utilities to report on the overall residual risk associated with each enterprise risk submitted in a RAMP or GRC filing. The Commission should consider requiring the utilities to explicitly submit data on its overall residual risk that includes the historical progress of risk reduction for every RAMP cycle. This information could help the Commission determine within the context of a given RAMP or GRC filing whether the utility has properly designed its mitigation programs to address overall residual risk to a level Californians can tolerate and at a speed that recognizes the need for prioritizing safety while appropriately accounting for costs.

Simple Optimization

Description of the Issue:

The RDF OIR also included discussion about whether the Commission should consider simple optimization techniques for a range of mitigation options.⁷ D.16-08-018 noted that the Commission could require the utilities to identify and quantify the key constraints affecting their selection of mitigation options for implementation.⁸ The RDF currently requires utilities to identify and rank risks and produce cost-benefit ratios (CBRs) for each Mitigation and Control at the Program and Tranche scale.⁹ Mitigation options must then be ranked based on their CBRs. However, the RDF does not require the utilities to select mitigation options for implementation based on CBRs alone.¹⁰ Thus, the Commission should explore basic risk mitigation optimization techniques by requiring the utilities to identify and quantify the key constraints affecting their selection of mitigation options for implementation.

In addition to budget limits and operational requirements, these constraints also include risk tolerance, which is why optimization should be discussed in tandem with that topic. Phase 4 will evaluate scenarios reflecting these constraints to develop guidance for a more complex optimization approach that includes a risk tolerance standard. These scenarios should reflect approaches that account for costs in the RAMP, GRC, Wildfire Mitigation Plan (WMP) and other memorandum accounts related to risk mitigation spending.

Planning Questions:

1. How does requiring the utilities to present diagrams and workpapers of overall residual risk help decision-makers and stakeholders determine if the utility's mitigation proposals in the RAMP and GRC reduce risk to levels that are tolerable for Californians?

⁶ D.22-10-002, Appendix A, Requirement #20 at A3.

⁷ R.20-07-013 at 21.

⁸ D.16-08-018 at 184.

⁹ D.24-05-064, Appendix A, Row 26, at A-17.

¹⁰ *Ibid.*

2. How does requiring the utilities to explicitly state their risk tolerance help decision-makers and stakeholders determine if mitigation proposals in the RAMP and GRC are an appropriate strategy for reducing risk to acceptable levels?
3. Should utilities be allowed to apply a scaling function to express a risk-averse tolerance? Why or why not?
4. Should the Commission require utilities to explicitly state their risk tolerance for each risk event?
 - a. If yes, explain if the Commission should immediately or gradually require the utility to establish a risk tolerance for every risk submitted to a RAMP filing.
 - i. If gradually, for which risks should the utilities first establish a risk tolerance?
 - b. If no, why not?
5. Should risk tolerances be established at the overall residual risk level in dollars? Should tolerance be set at the attribute level, in natural units and/or dollars? Explain your answers.
6. In the context of a RAMP and GRC filing, should the Commission require the utilities to present how much risk can be reduced in the next GRC cycle to bring overall residual risk in line with risk tolerance?
 - a. Should the utilities also present how much time it will take for them to bring overall residual risk in line with risk tolerance?
7. Should the Commission establish a forum of key stakeholders whose consensus on risk tolerance would represent the residents of California and inform the utilities' RAMP and GRC filings?
8. Should the Commission require the utilities to use probability distributions for identifying and presenting the Consequence of a Risk Event (CoRE)?
9. Should the Commission require the utilities to use probability distributions for identifying and presenting the Likelihood of a Risk Event (LoRE)?
10. Should the Commission require the utilities to construct portfolios of risk mitigations for each risk event addressed in a RAMP or GRC filing? Why or why not?
 - a. If yes, since the portfolio may include two or more mitigations, should the utility identify the mitigations as having a relationship that is synergistic or exhibits diminishing returns?¹¹ Explain your answer.
11. Should the Commission require the utilities to present a set of optimal portfolios for reducing the risk of each risk event addressed in a RAMP or GRC filing? Why or why not?
 - a. If yes, should the utilities be required to provide a justification for its portfolio selection and approach to optimization in a RAMP or GRC filing? Why or why not?
12. Is taking account of tail risk an important way to optimize portfolios of risk mitigations? If so, what methods can be used to address both expected value and tail risk when determining to optimal selection of risk mitigations? If not, why not?
13. Should the Commission provide explicit guidance instructing the utilities how they should conduct the simple optimization of portfolios of risk mitigations? Why or why not?

¹¹ By synergistic SPD means that the mitigations result in mutually reinforcing risk reduction efficiency. By diminishing returns SPD means that as one mitigation reduces risk it limits the efficiency of the other mitigation to reduce risk.

- a. If yes, should the utilities be required to use linear programming to optimize their portfolios of risk mitigations? Why or why not?