R. 20-07-013 Phase 1, Track 1 Technical Working Group Meeting

Safety Policy Division



California Public Utilities Commission

Agenda Item	TIME
Introductions	10:00 am - 10:15 am
Foundational Elements	
TURN presentation on foundational elements	10:15 am - 10:35 am
MGRA presentation on foundational elements	10:35 am – 10:55 am
Intervenor presentation discussion	10:55 am - 11:15 am
Joint utility presentation on thresholds	11:15 am - 11:30 am
General discussion	11:30 am - 12:00 pm

Lunch	Break
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Baseline Year for Risk-Based Decision-Making Framework Filings

Sempra presentation on baseline year

TURN presentation on baseline year

General discussion

1:00 pm - 1:15 pm

1:15 pm - 1:30 pm

1:30 pm - 1:55 pm

Next steps and conclusion

1:55 pm - 2:00 pm

California Public Utilities Commission

Treatment of Foundational Programs in Risk Analysis

The Utility Reform Network (TURN)



Foundational Program

Defined:

- No direct risk reduction effects, hence, the RSE of every foundational project is zero by definition
- Supports at least two mitigations
- No need to address sunk costs

Foundational Program Valuation Goals

- Avoid arbitrary cost allocations
- Reflect full costs of foundational programs to implement all supported mitigations and mitigation portfolios
- Compute RSEs based on present value total risk reduction and the present value cost of mitigations and their required foundational elements
- Compute value for ALL potential combinations of mitigations
 - Exclude any possibilities that the utility knows it cannot or will not propose in RAMP/GRC

TURN's Proposed Portfolio Approach

- Assumptions
 - **T** mitigations: $M_1, M_2, \dots M_T$
 - ► K Foundational Programs: F₁, F₂, ... F_K
- For Example:



Portfolio	Foundational Programs	RSE Calculation *
M ₁	F ₁	$PV\Delta R(M_1) / PV C(M_1+F_1)$
M ₂	F_1+F_2	$PV \Delta R(M_2) / PV C(M_2+F_1+F_2)$
M ₃	F ₂	$PV \Delta R(M_3) / PV C(M_3+F_2)$
M_1+M_2	F_1+F_2	$PV \Delta R(M_1+M_2) / PV C(M_1+M_2+F_1+F_2)$
M ₁ +M ₃	F_1+F_2	$PV \Delta R(M_1+M_3) / PV C(M_1+M_3+F_1+F_2)$
M ₂ +M ₃	F_1+F_2	$PV \Delta R(M_2+M_3) / PV C(M_2+M_3+F_1+F_2)$
$M_1 + M_2 + M_3$	F_1+F_2	$PV \Delta R(M_1+M_2+M_3) / PV C(M_1+M_2+M_3+F_1+F_2)$

* The + in this column signifies a combination of the mitigations and foundational project.

TURN's Proposed Portfolio Approach

TURN Opposes Thresholds

- TURN opposes the adoption of dollar thresholds above which projects will be scored.
- Excluding required foundational costs below a certain threshold will bias RSE scores upwards.
 - Adoption of thresholds would mean that certain foundational costs are not included when scoring a mitigation program.
 - Unless all required foundational costs are included, programs will appear more cost-effective than they actually are.

Questions?

Foundational Element Impact on Risk Reduction

Prepared for: Mussey Grade Road Alliance S-MAP II Phase 1 Track 1 Technical Working Group

August 18, 2021

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Foundational Elements

"Foundational programs and/or activities are initiatives that support multiple mitigation programs but do not *directly* reduce the consequences or reduce the likelihood of risk events."

There are indirect dependencies. Can these be used to estimate value?

Example Risk Curve as a Function of Foundational Program Spending



Foundational Program Spending S

Figure 1 - This plot shows an example of how overall risk is affected by foundational program spending. Risk can be effectively unbounded if a foundational program is eliminated. At higher levels of spending a point of diminishing

returns is reached. Sensitivity (represented by $\Delta R/\Delta S$) can be measured by looking at deviations from the proposed spending amount.



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Looking at R/Sat S⁺ and S⁻ gives an indication of whether spending is optimized.

(Second derivative)

Simple 10% Delta Method

- If spending on the program were to be reduced by 10%, how would overall risk be affected?
- If spending on the program were to be increased by 10%, how would overall risk be affected?
- Utility states portfolio change and justification.
- Intervenors propose alternatives for sensitivity analysis.

Disadvantage: Arbitrariness re which projects and programs will be affected.

TURN Proposal

Calculate all (valid) permutations

Portfolio	Foundational Programs	RSE Calculation
M1	F1	$PV\Delta R(M_1) / PV C(M_1+F_1)$
M2	F1+F2	$PV \Delta R(M_2) / PV C(M_2+F_1+F_2)$
M3	F ₂	PV ΔR(M ₃) / PV C(M ₃ +F ₂)
M ₁ +M ₂	F1+F2	$PV \Delta R(M_1+M_2) / PV C(M_1+M_2+F_1+F_2)$
M1+M3	F1+F2	$PV \Delta R(M_1+M_3) / PV C(M_1+M_3+F_1+F_2)$
M2+M3	F1+F2	$PV \Delta R(M_2+M_3) / PV C(M_2+M_3+F_1+F_2)$
M1+M2+M3	F ₁ +F ₂	$PV \ \Delta R(M_1 + M_2 + M_3) \ / \ PV \ C(M_1 + M_2 + M_3 + F_1 + F_2)$

 Advantage – Complete analysis. Great if you can do it.

Disadvantage: May be very large number of permutations. Difficult if not automated. Add deltas (2nd derivative)

Intervenor presentation discussion

10:55 am – 11:15 am

PG&E Illustrative Example

Foundational Elements

August 16, 2021





Foundational Activity – Illustrative Example

Mitigation Foundat- ional Activity	Enhanced Veg Mgmt	System Hardening – OH	System Hardening – UG	Expulsion Fuse Replacement	Line Sensors	Cameras	Satellite Fire Detection
Additional Asset Data Capture	0	1	1	1	1	0	0
Advanced Fire Modeling	0	0	0	0	0	1	1
CWSP PMO	1	1	1	1	1	1	1
Fire Potential Index	0	0	0	0	0	1	1
Improved Distribution Risk Model	1	1	1	0	0	0	0
Weather Stations	0	0	0	0	0	1	1



Program Information

				NPV Risk
Program	Foundational	NPV C	ost (\$M) - 2023-2026	Reduction Total
Additional Asset Data Capture	Yes	\$	4,265,960	
Advance Fire Modeling	Yes	\$	20,871,280	
Cameras		\$	28,840,000	559.40
Community Wildfire Safety Program PMO	Yes	\$	48,747,075	
Enhanced Vegetation Management		\$	1,802,263,884	4,519.77
Expulsion Fuse Replacement		\$	72,472,663	85.35
Fire Potential Index	Yes	\$	596,271	
Improved Distribution Risk Model	Yes	\$	4,977,316	
Line Sensors		\$	126,280,000	2,127.99
Satellite Fire Detection		\$	1,191,102	183.44
PSPS Reduction Initiatives - Sectionalizer				
Device Insall/Replace		\$	88,850,000	1,125.70
System Hardening - OH		\$	2,760,903,435	15,403.84
System Hardening - UG		\$	1,042,193,418	4,648.92
Weather Stations	Yes	\$	11,592,439	
Total		\$	6,014,044,842	28,654.41



Thresholds (RSAR-based)

- RSAR-based
 - The cost of foundational programs should be included in portfolio RSE calculations if the aggregate cost of the foundational programs supporting a portfolio of enabled risk mitigations exceeds the lesser of \$10 million, or 20 percent of the cost of the portfolio of enabled mitigations, subject to a minimum of \$5 million.

NPV Mitigation Cost (2023-26, \$M)	5,923
NPV Total Foundational Cost (2023-26, \$M)	91
Foundational Cost (% of Mitigations)	2%
Pass Threshold	Yes, > \$10m
Total "Portfolio" RSE	4.76
RSE w/o Foundational	4.84

General discussion

11:30 am – 12:00 pm

Lunch Break 12:00 pm- 1:00 pm

Baseline Year for Risk-Based Decision-Making Framework Filings

Sempra presentation on baseline year

California Public Utilities Commission

Proper RAMP Baseline

The Utility Reform Network



Staff Report Properly Defines Baseline

- Staff Report on Phase I, Track 1, p. 7: The baseline refers to the existing level of risk at the start of the new GRC cycle. If a utility does not account for the expected risk reduction benefits from previously approved measures and/or programs that are not yet installed and/or implemented (i.e. "in progress") or completed by the time a utility submits its RAMP or GRC applications, it may introduce errors, including double counting risk reduction benefits, in its estimates of the effectiveness of proposed new risk mitigations.
- Settlement Lines 10 and 11 addressing how to identify the Consequence and Likelihood of Risk Event include the language that the pre-mitigation scores should "take into account the benefits of any mitigations that are expected to be implemented prior to the GRC period under review in the RAMP submission."

Risk, Not Costs, is the Subject of RAMP

- Important baseline data point in the RAMP is risk not spending. The Settlement addresses risk analysis. Lines 10 and 11 specifically address risk assessment in preparation for RAMP.
- To properly calculate the risk reduction benefits of mitigations proposed for 2024 and beyond requires that the baseline for the risk reduction calculations be the level of risk expected at the end of 2023. Otherwise, the analysis would double count risk reduction benefits that are supposed to be achieved by activities that take place before the 2024 test year.
- D.20-01-002, the Rate Case Plan decision, does not alter the settlement or impact the calculation of RSE. D.20-01-002 discussion of base year relates to the year of recorded spending that will inform the test year. As that decision notes, the base year may change based on when the utility can update recorded data (p. 61).

General discussion

1:30 pm – 1:55 pm





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Next steps and conclusion