



UM 2225 Resiliency Technical Conference

December 15, 2022

UM 2225 Resiliency Technical Conference Agenda

- Resiliency Investigation to Date
- Resiliency in CEPs (Clean Energy Plans)
- Resiliency Opportunities beyond CEPs

Resiliency Investigation to Date

Review resiliency discussions in
proceeding
Present findings of GMLC report
Commissioner Q & A

House Bill (HB) 2021 Key Elements

Emissions reductions

- 80% reduction – 2030
- 90% reduction – 2035
- 100% GHG free – 2040
- Natural gas plant prohibition

Planning and protections

- Clean Energy Plans (CEP)
- Reliability pause
- Affordability off ramp
- Non-bypassability
- Regional coordination

Environmental justice

- Advisory groups
- Labor standards
- Community benefits analysis

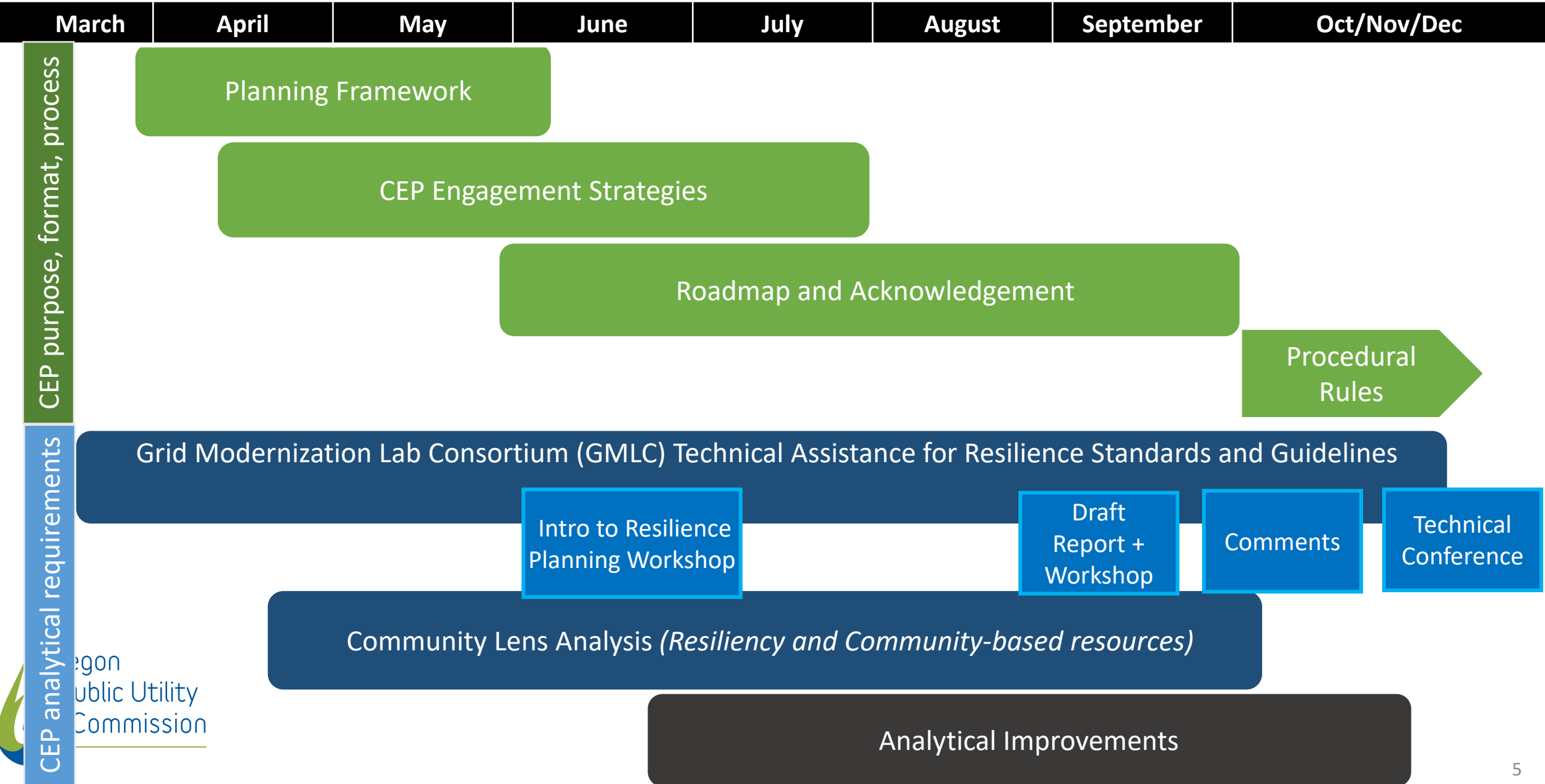
Community renewables

- 10% small-scale by 2030
- ODOE Grants
- ODOE Study

Consumer choice

- Community renewables
- Code of conduct (maintaining competition)

UM 2225 Investigation



CEP purpose, format, process

CEP analytical requirements

Oregon
Public Utility
Commission

UM 2225 Investigation

- Focus on low regrets, critical junctures, dependencies, and barriers
- CBIs for portfolios
- CBRE potential study → informs portfolio analysis
- Test different paces of GHG reduction
- Transparency into fossil operations
- Data standardization and transparency

- Annual actions + CBIs and other metrics
- CBRE acquisition targets + acquisition actions
- Annual reduction of emissions
- Balance cost, risk, pace of GHG reductions, CBIs
- Acknowledgement considers effectiveness of engagement and consistency with other plans



HB 2021 Requirements
(GHG targets & CEP considerations/requirements)

IRP fully incorporates HB 2021 GHG targets and other requirements

IRP

Action Plan

CEP

CEP provides additional information, but does not revise the Action Plan

Bulk system information

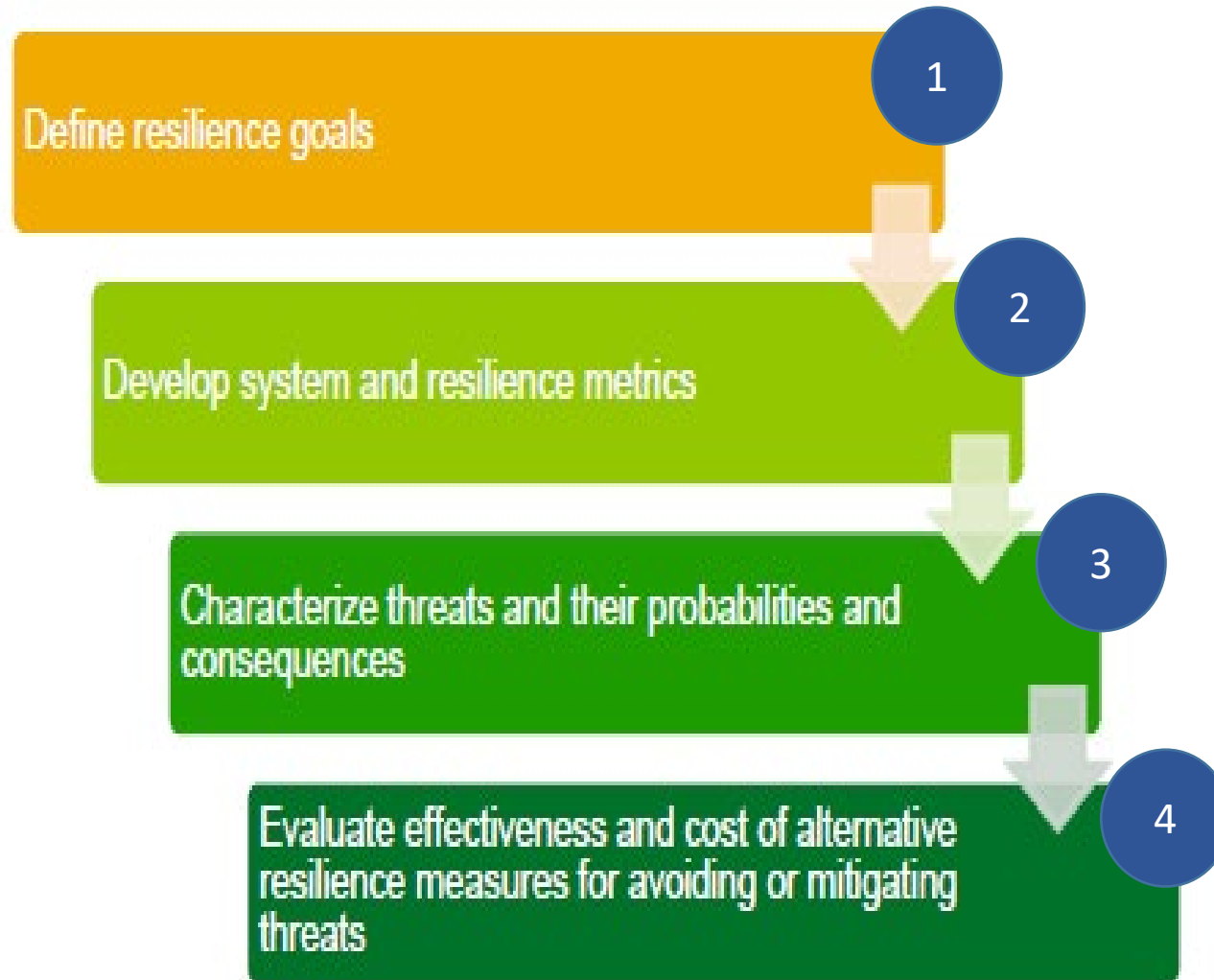
Local and community-focused information

DSP

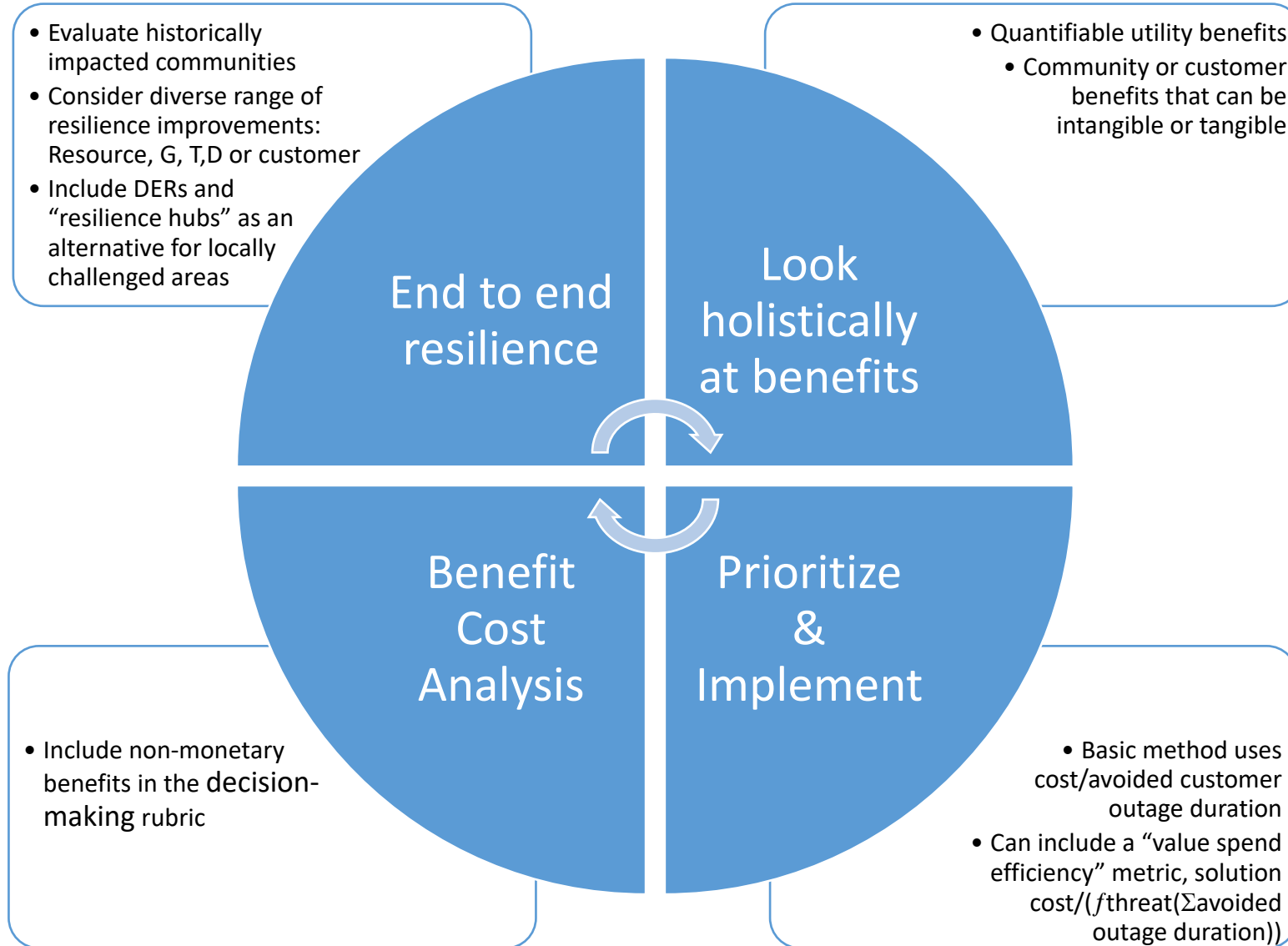
Acknowledge Actions in IRP

Acknowledge Annual Goals and GHGs in CEP

Development Path for Resilience Analysis

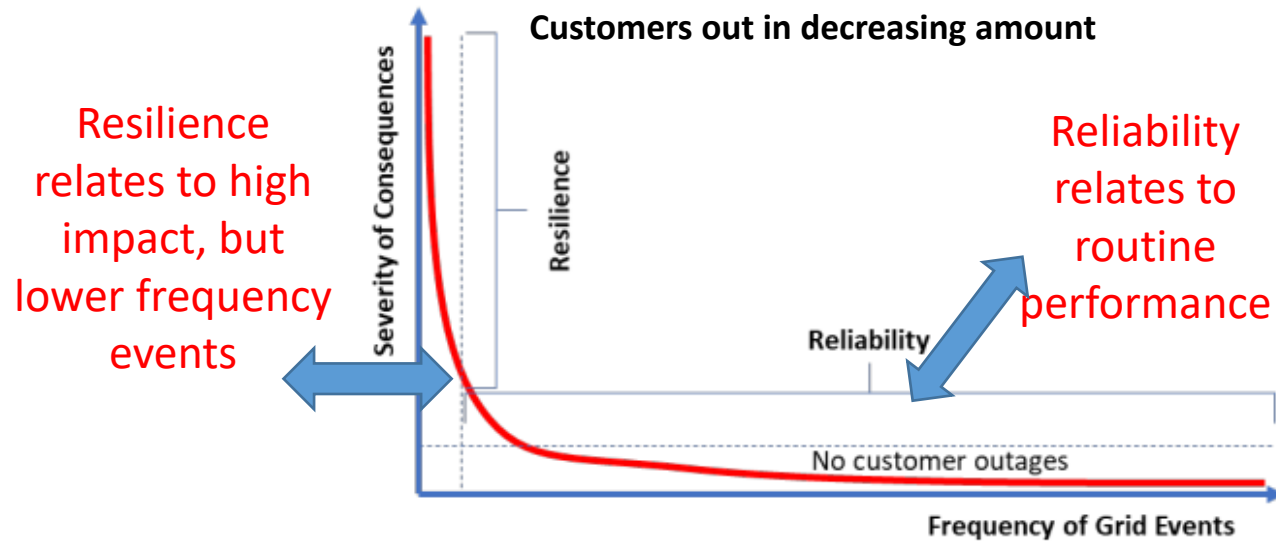


1-Set Goals for Resilience

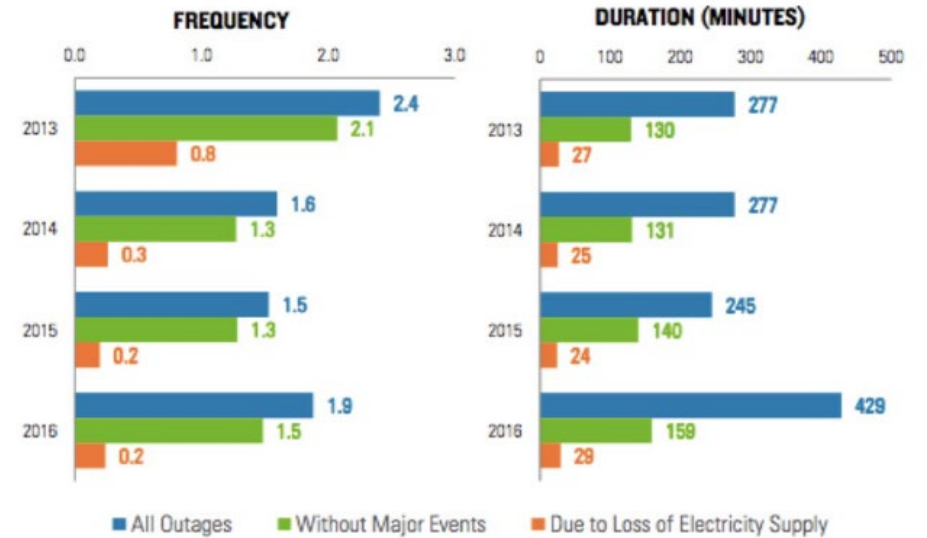


2-Develop System & Resilience Metrics

Comparing Reliability versus Resilience



Reliability Metrics, Including Extreme & Loss of Supply Events



Source: Rhodium Group analysis, EIA. Note: Loss of supply during major events is included in loss of electricity supply.

- Resilience events are related to high impact, but lower frequency events
- They tend to be the result of a single triggering event such as severe weather or earthquakes
- Reliability is generally discussed for a system or a grouping of areas; resilience and risks can be very localized to communities and as a result needs to be considered in a more granular way

3-Characterize Threats: Probability & Consequences

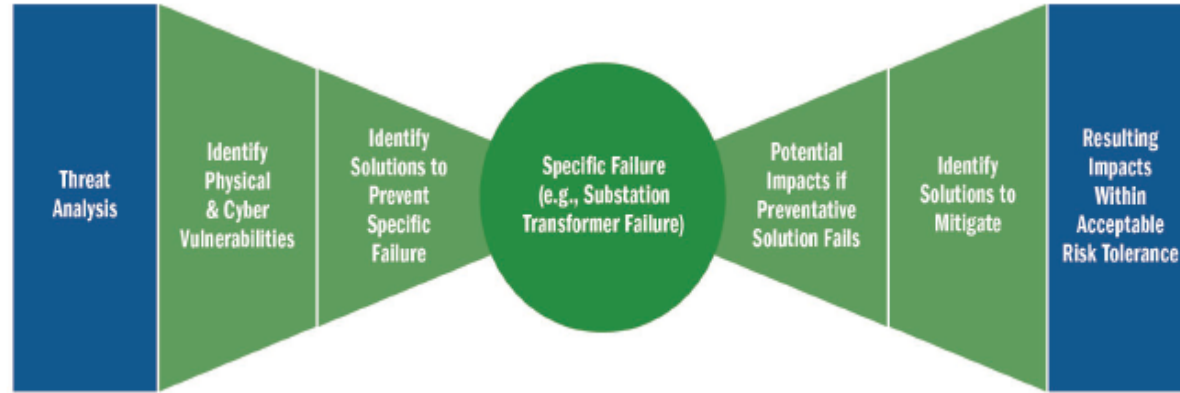
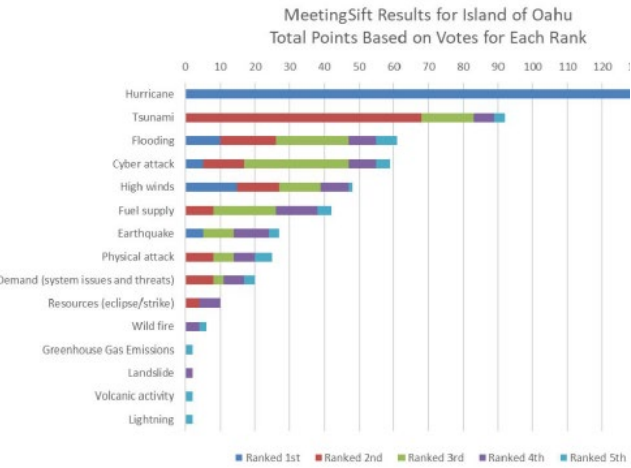
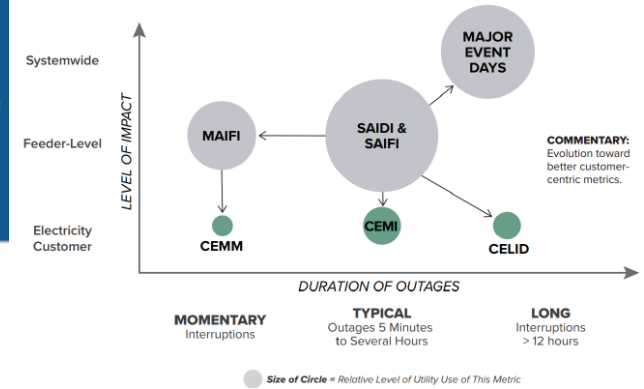


Figure 7. Resilience Bowtie Method (adapted from Taft and De Martini 2022)



- These graphics show how we can think about threats and their impacts; in the center is a bowtie graphic, which is constructed for each threat and damage scenario, the right side of the bowtie identifying the impacts, and potential mitigation measures to those impacts
- Threats need to be tailored to the communities and historic, current and future risks evaluated and can benefit with inputs from communities, who know their experiences with various events
- Mitigation can include avoidance of the threat, adaption to reduce the damage from the impact or minimization of the impact
- On the right side, the graphic shows how some utilities are developing more granular reliability and resilience measures to gauge performance

4-Determine Mitigation Measures and Valuation of Choices

RSE Calculation Summary

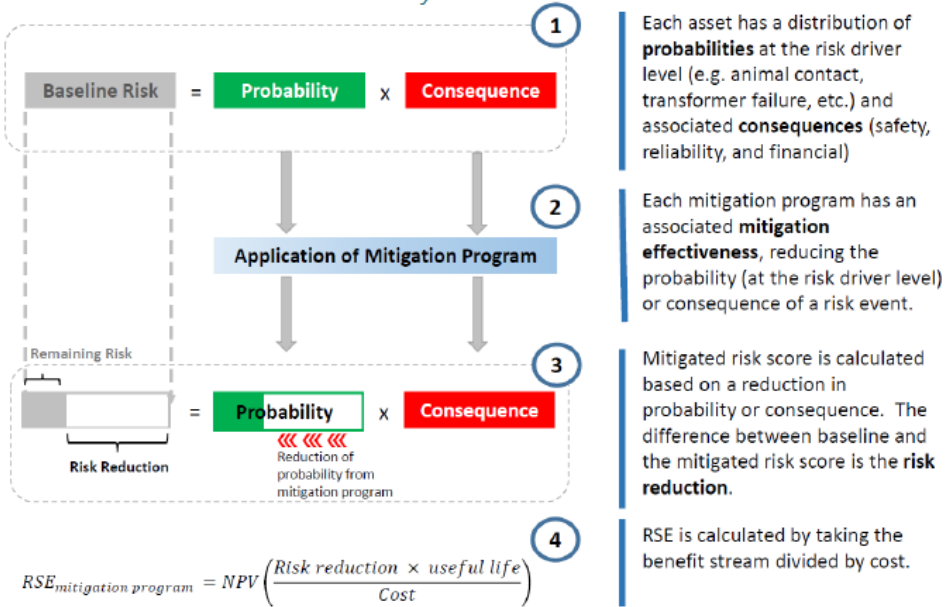


Figure 18. Southern California Edison Risk Spend Efficiency Calculation Method (SCE 2021)

Table 14. Illustrative Value Spend Efficiency Calculation (De Martini et al. 2022)

Specific Projects	Planning Objectives Ranked (1-5)							Score	Cost (\$mm)	Spend Efficiency (S/C)
	Safety (5)	Service Compliance (5)	Reliability (3)	Resilience (4)	Electrification (3)	DG/DS Integration (3)	Equity (4)			
Tree Trimming ¹	5		3	3				11	\$2.5	4.4
Undergrounding ²	3		3	4	1	1	2	14	\$5.0	2.8
Pole/Tower Hardening	7	7	3	4			1	15	\$7.0	7.5
4kV Voltage Upgrade Conversions	4	4	2	3	3	3	3	22	\$10.0	4.5
Substation Breaker Replacement ²	5	5	3		1	1		15	\$2.0	7.5
ADMS		3	3	3	2	3	1	15	\$2.5	6.0
Field Automation ^{2,3}	3	3	3	3		1	2	15	\$3.0	5.0
Advanced Metering	1	2	2	1	1	3	1	11	\$2.5	4.4

1. Improved reliability & resilience supports greater consumer reliance on electrification
2. If program involves using larger conductor or higher capacity equipment
3. Improved reliability and resilience of grid improves the availability for DER to provide bulk power & grid services

- Graphic on the left memorializes one approach to calculate “risk spend efficiency”
- Scoring can incorporate non-utility values to recognize impacts experienced, as is shown in the example on the right
- With this calculation and the products, each threat and various alternatives could be scored and chosen to advance to achieve improved resilience

UM 2225 GMLC Key Takeaways

- Risk identification and mitigations chosen need to include the voices of the communities
- Resiliency Structured Approach
 - Defining resiliency
 - Establish metrics
 - Develop threat landscape
 - Consider mitigations and adaptations
 - Quantify method for prioritizing
 - *Do it*
- Resiliency is a much larger topic than just the CEPs

Commissioner Q & A



Resiliency In CEPs

Clean Energy Plan guidance and next steps
PGE & PacifiCorp share their consideration of
resilience in CEPs
Energy Advocates highlight their comments for the
Commission
Commissioner Q & A with utilities and stakeholders

Comments Received on GMLC Report

Supportive of the content and process

Utilities highlight the concerns about the aspirations given the timing

Key takeaways included:

- Short term goals
 - 1) focus on CBRE acquisition study, prioritizing integration into CEPs as possible, particularly where resilience is enhanced for communities
 - 2) establish at least one resilience community benefit indicator and metric
 - 3) perform a high-level assessment (perhaps using work from DSP or WMPs) to evaluate threats for at least two communities that have been impacted by resiliency events
 - 4) utilize readily-available tools to consider varying impacts to individuals and communities
- Long term goals
 - 1) enhance CBIs and metrics using input from communities
 - 2) continue risk assessments, further leveraging work, and incorporating climate change analysis
 - 3) map vulnerable communities and develop zone of tolerance approaches to score projects that mitigate impacts

Near-Term Guidance Incorporates Resilience Work

Community Lens: clarify analytical expectations of CEP requirements relating to risk-based resiliency analysis, community-based resources and community benefits into planning analysis

- CEP includes a CBRE potential analysis, using CBIs, to inform annual acquisition targets for CBREs and a description of activities to meet those targets.
- CBRE acquisition actions should help facilitate emissions reductions and be developed with communities and with input from Staff and stakeholders.
- Develop quantifiable and measurable CBIs for resilience, health and community well-being, environmental impacts, energy equity, and economic impacts.
- CEP includes CBRE proxy in portfolio modeling to examine fossil offset opportunities from CBREs.
- CBRE analysis includes additional resiliency planning practices.

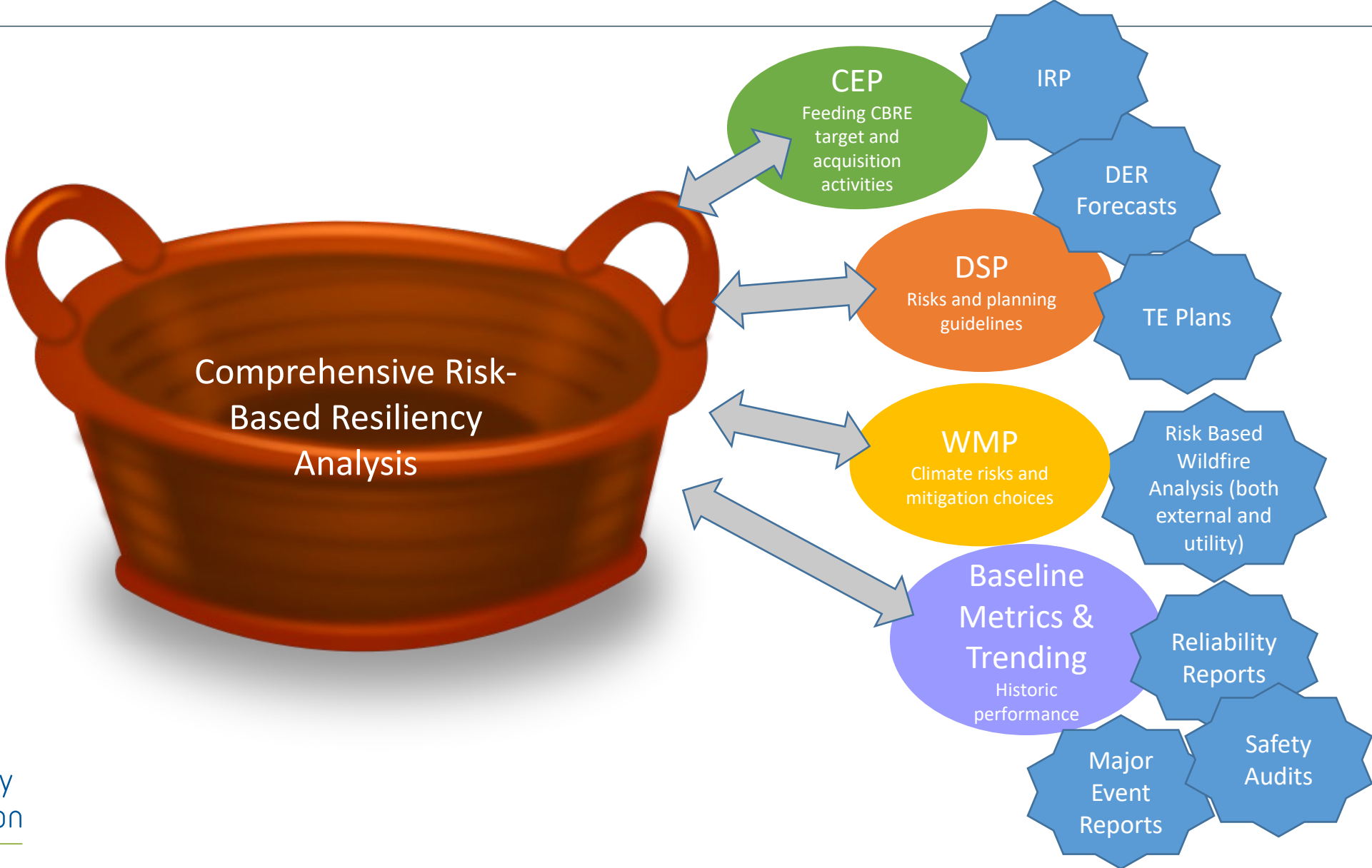
Commissioner Q & A



Resiliency Opportunities beyond Clean Energy Plans

Resiliency Activities beyond CEPs
Commissioner Dialogue

Integrating the Various Planning Activities into a Cohesive Context



Resilience in the Future

Incorporate learnings from GMLC into current proceedings where appropriate

- 1) Stakeholder engagement/community involvement
 - IRP, DSP and WMP recognize how important community and stakeholder inputs are in moving forward a variety of actions that will be unfolding over the near term
- 2) Reliability reporting enhancements
 - locational reliability results
 - “blue sky” and extreme event results
- 3) Major event reporting
 - Better transparency about major events
 - Explicit discussion of impacts of extreme events on the communities they impacted
- 4) Harmonize risks/identification of probabilities of “deliverability”
 - DSP outlined planning criteria utilities use
 - WMP requires risk assessment of wildfire
 - Safety audits convey performance against NESC standards
- 5) Explore risks/identification of scenarios regarding resource availability
 - In DSP, resources are addressed in private generation and energy efficiency forecasts

Key Takeaways

Risk identification and mitigations chosen need to include the voices of the communities

Resiliency Structured Approach

- ✓ Defining resiliency
- ✓ Establish metrics
- ✓ Develop threat landscape
- ✓ Consider mitigations and adaptations
- ✓ Quantify method for prioritizing
- ✓ *Do it*

Resiliency is a much larger topic than just the CEPs

Commissioner Q & A

