Technical Working Group Meeting #4: Safety Culture Maturity Model and Indicators

Thursday, June 28, 9:00am-2:00pm

R.21-10-001: ORDER INSTITUTING RULEMAKING TO DEVELOP SAFETY CULTURE ASSESSMENTS FOR ELECTRIC AND NATURAL GAS UTILITIES

California Public
Utilities Commission

Welcome and Introduction

9am-9:20am

R. 21-10-001 Background

October 13, 2021: Commission opens Rulemaking (R.) 21-10-001	**November 29, 2021:** Opening Comments filed to the OIR	**December 29, 2021:** Reply Comments filed to the OIR	**March 11, 2022:** Initial kickoff workshop for the proceeding	**June/July 2022:** Technical working group meetings	**September/ October 2022:** All-party meeting; draft staff proposal and workshop

Goal of proceeding: To develop and adopt a safety culture assessment framework and process for regulated investor-owned electric and natural gas utilities and gas storage operators, in fulfillment of SB 901 and other Commissions oversight responsibilities

Summer Technical Working Group Meetings

Thursday June 16, 9am-3pm	Technical Working Group Meeting #1	Safety culture definitions and framework
Friday June 24, 1pm-4pm	Technical Working Group Meeting #2	Collaborative approaches to safety culture
Friday July 22, 1pm-3pm	Technical Working Group Meeting #3	Safety culture assessment methods, schedule and process
Thursday July 28, 9am-2pm	**Technical Working Group Meeting #4**	**Safety culture maturity model, indicators, and metrics**

Meeting Objective

Continue to develop a shared understanding to answer the following scoping questions:

- What framework mechanisms could be implemented to ensure safety cultural assessments are focused on actual safety improvement (on the ground results) within the industry?

- What safety outcomes or metrics should be used to evaluate the efficacy of the safety culture assessment process developed within this proceeding?

- What methodologies should be employed in the safety culture assessments to ensure results are comparable across our regulated entities and can measure changes in our regulated entities' safety culture over time?

- Should the Commission formally adopt a maturity model to use in safety culture assessments for all electric and gas utilities, and gas storage operators?

Meeting Agenda

Time	Topic
9:00am-9:20am	Welcome and introduction
9:20am-10:20am	Safety culture maturity model
10:20-10:30am	Break
10:30am-11:00am	Safety culture indicators
11:00am-12:00pm	Western Area Power Administration
12:00pm-1:00pm	Lunch
1:00pm-1:45pm	Facilitated discussion
1:45-2:00pm	Closing and next steps

Virtual Housekeeping

- **Recording; Slides**
  - Please note that this meeting is being recorded
  - Workshop recording and slides will be sent to the service list and posted on the CPUC website after the meeting

- **Questions**
  - Please type questions into chat, use Q&A feature, or raise hand
  - Q&A sessions throughout presentations + longer discussion at the end of workshop
  - Staff will follow to respond to any unanswered (or additional) questions after the workshop
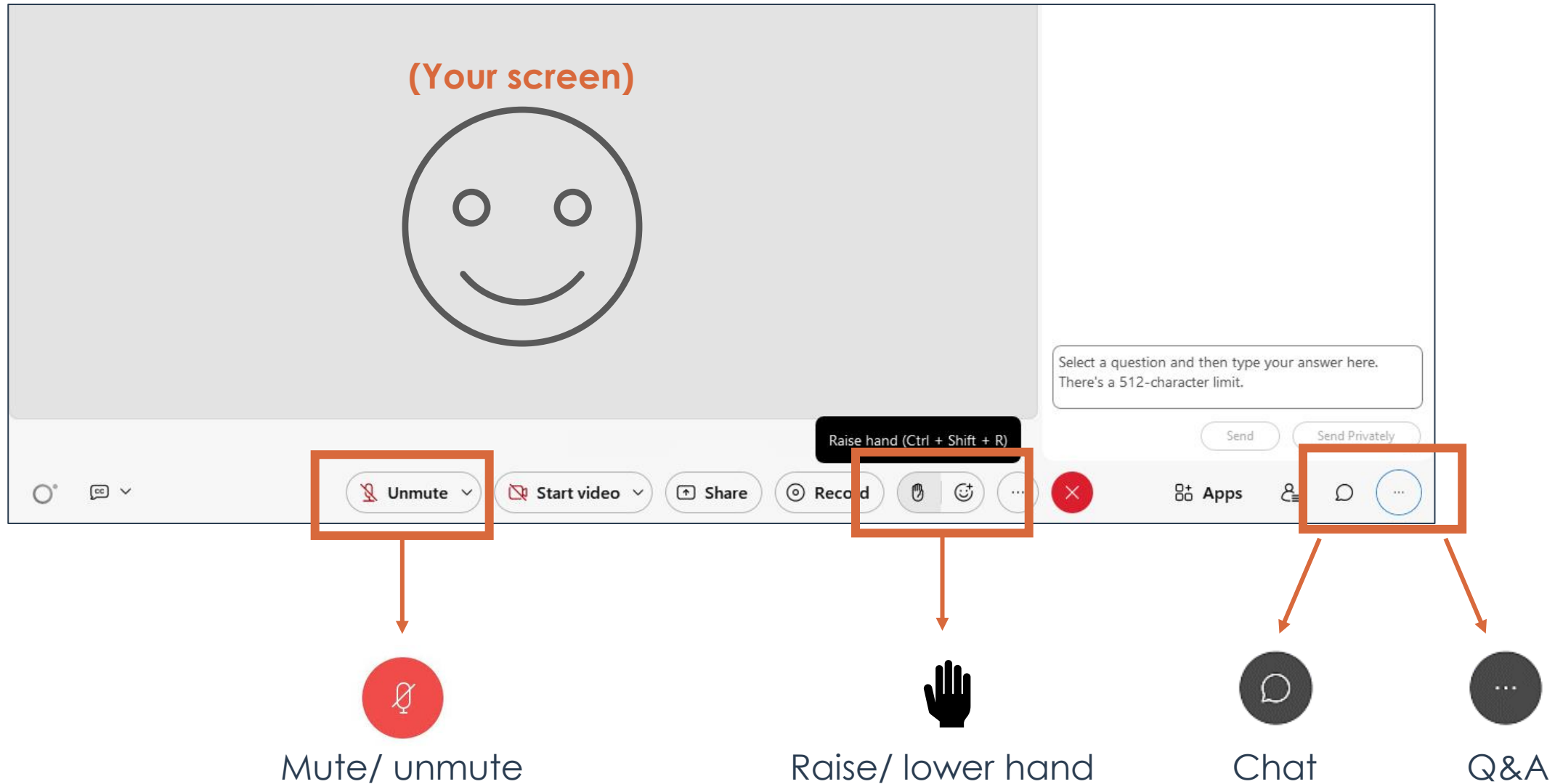
- **Timing**
  - To be respectful of everyone's time, we will maintain scheduled starting times for each presentation outlined in the agenda
  - Additional topics will also be covered in subsequent technical working group meetings or workshops

- **IT Support**
  - Jorge De Ocampo, Marcos Rodriguez, and Jeremy Holloway

Virtual Housekeeping, Continued

Opening Remarks

Safety culture maturity model

Safety Policy Division, BSMS, and Motive Power

9:20am-10:20am

Agenda

- Challenges facing the CPUC in creating a Safety Culture regulatory process
- The Motive Power BSMS Safety Culture maturity model – PURE (Public Utility Risk Evaluation)
- Staff recommendations and options

Challenges of Safety Culture Regulation

Challenge 1: Safety culture is an evolving science

Functionalist Approach	Interpretative Approach
• Culture is "top-down," or driven by management • We can engineer culture through actions that address management system faults, people's behavior, risk assessment, and decision-making • Favored by managers and practitioners	• Culture is "bottom-up," or socially constructed by members of the organization • To change culture, we need an in-depth understanding of assumptions and attitudes • Favored by social scientists

Which approach is best?

Challenge 2: Mandating safety culture?

- Culture includes "behaviors, norms, knowledge, beliefs."

- Safety Culture represents a public good that should be prioritized and encouraged.

- Is it possible or even appropriate to mandate beliefs?

How can the evolution of a culture be best influenced?

Challenge 3: Safety culture is not necessarily homogeneous

Focus Area	Business unit	Region	Commodity	Senior Manager/ Contractor Front line
Occupational	A level	A- Level	B- Level	B level
Process	D- Level	B level	D- Level	A level
Strategy	A level	D- Level	C- Level	C level
Investment	D- Level	D- Level	D- Level	D- Level

Which safety culture are we talking about?

Challenge 4: The scoring paradox

- Maturity model create a score and a scale against which safety culture can be evaluated.

- Scores are used to assess and quantify progress and maturity.

- Assessing Safety Culture on an established fixed scale (i.e., scoring) might reinforce a "check-the-box" culture and inadvertently create a disincentive to improve safety culture.

What is the right assessment process?

Challenge 5: Learning and growing safety cultures

- Many unknown elements of the safety culture of an organization have yet to be identified.

- Many unknowns exist in how to assess safety culture.

- How can we develop an environment where IOUS and the CPUC can share information to learn and develop best practices in Safety culture?

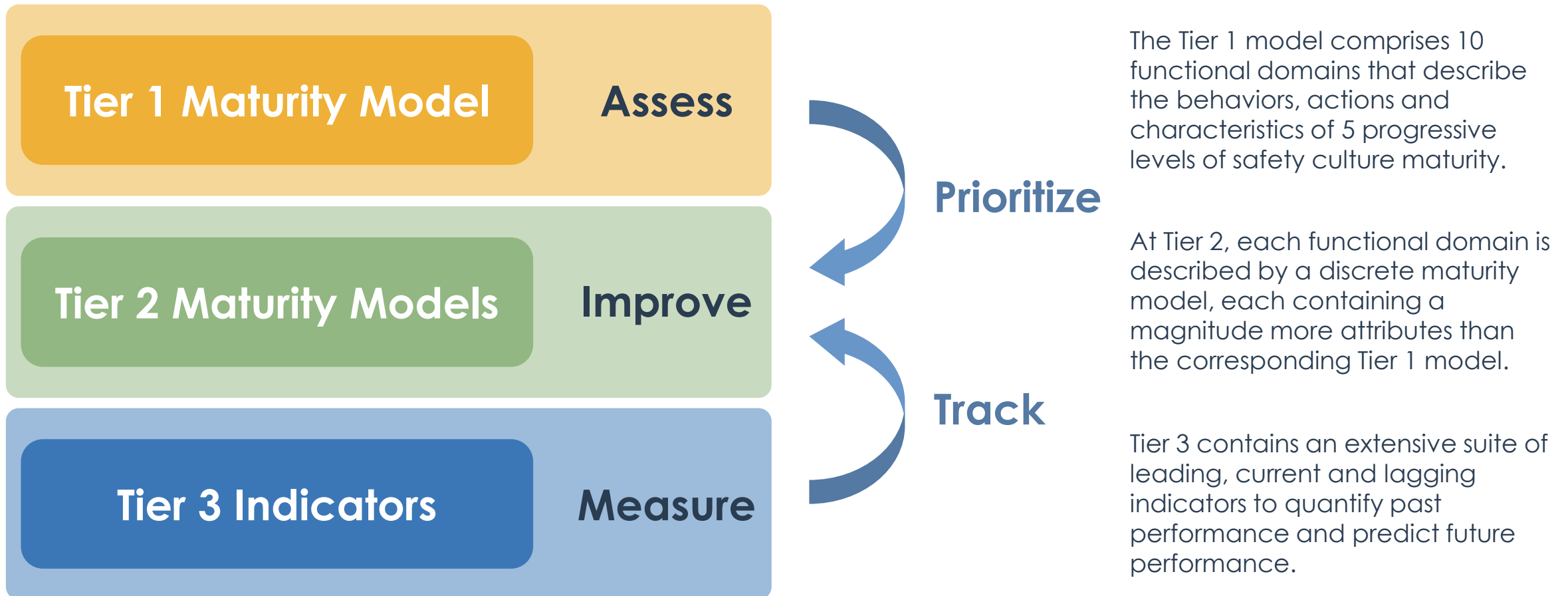# The Public Utilities Risk Evaluation (PURE)

The Safety Culture Maturity Model

The safety culture assessment maturity model (PURE)-proposed framework establishes an anchor for prioritizing safety culture improvements in an IOU's portfolio

- Assumption: Safety culture is under the control of the Executive and senior management.

- A set of actions represents a portfolio of options for the IOU.

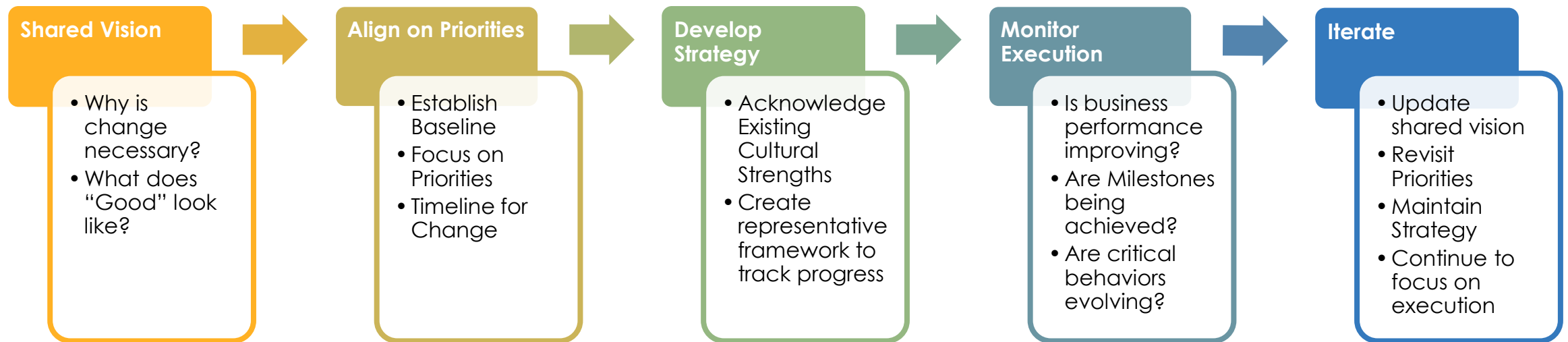- Assessments create a measure to assess to prioritize to achieve results.

Maturity model overview

The proposed maturity model will quantify improvements in, and define best practice for safety culture

Tier 1 Maturity Model — Assess

Tier 2 Maturity Models — Improve

Tier 3 Indicators — Measure

Prioritize

Track

The Tier 1 model comprises 10 functional domains that describe the behaviors, actions and characteristics of 5 progressive levels of safety culture maturity.

At Tier 2, each functional domain is described by a discrete maturity model, each containing a magnitude more attributes than the corresponding Tier 1 model.

Tier 3 contains an extensive suite of leading, current and lagging indicators to quantify past performance and predict future performance.

Driving cultural change

- The proposed maturity model will support each step of California IOUs journey to improve their safety culture.

Shared Vision
- Why is change necessary?
- What does "Good" look like?

Align on Priorities
- Establish Baseline
- Focus on Priorities
- Timeline for Change

Develop Strategy
- Acknowledge Existing Cultural Strengths
- Create representative framework to track progress

Monitor Execution
- Is business performance improving?
- Are Milestones being achieved?
- Are critical behaviors evolving?

Iterate
- Update shared vision
- Revisit Priorities
- Maintain Strategy
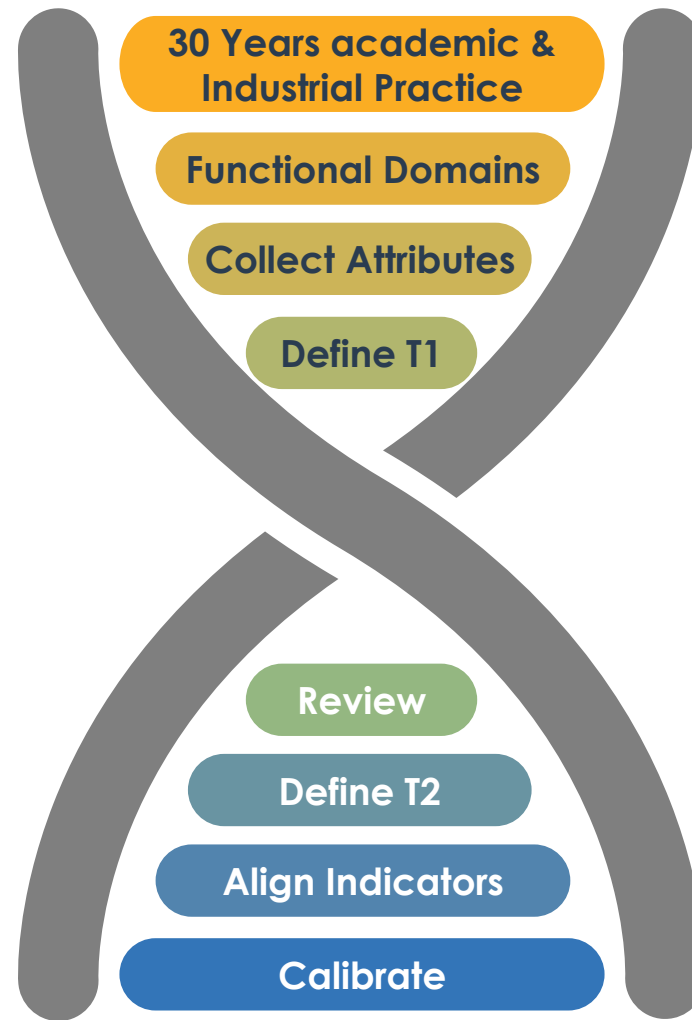- Continue to focus on execution

Maturity model development process

1. Literature Review

1. Thorough and detailed review of ~30 years Safety Culture of academic & industrial practice
2. Defined functional domains

2. Define Attributes

1. Identify attributes based on evidence from academia and industry
2. Filter attributes to identify most representative attributes for Tier 1
3. Refine Focus Areas
4. Review alignment of attributes to Utility industry and practices
5. Collect feedback from CPUC Core Team

3. Develop Tier 2 & 3

1. Identify attributes that represent best practice for Tier 2
2. Categorize attributes into T2 Focus Areas
3. Align industrially proven indicators to T1 & T2 Focus Areas

4. Calibrate Model

1. Analyze Safety Performance Metrics
2. Interview Utility Staff
3. Calculate correlation between outcome metrics and Model

30 Years academic & Industrial Practice

Functional Domains

Collect Attributes

Define T1

Review

Define T2

Align Indicators

Calibrate

Within each domain, there are five levels of maturity

Commanding
Continual safety culture improvement is in the entities DNA at all levels. Safe-production is a mantra and the horizon is scanned for potential safety issues a routine part of everyday activities.

Committing
The organization goes beyond minimal compliance in safety and is striving to achieve its safety culture mission and goals to greatly reduce the potential for harm in the workplace and the community.
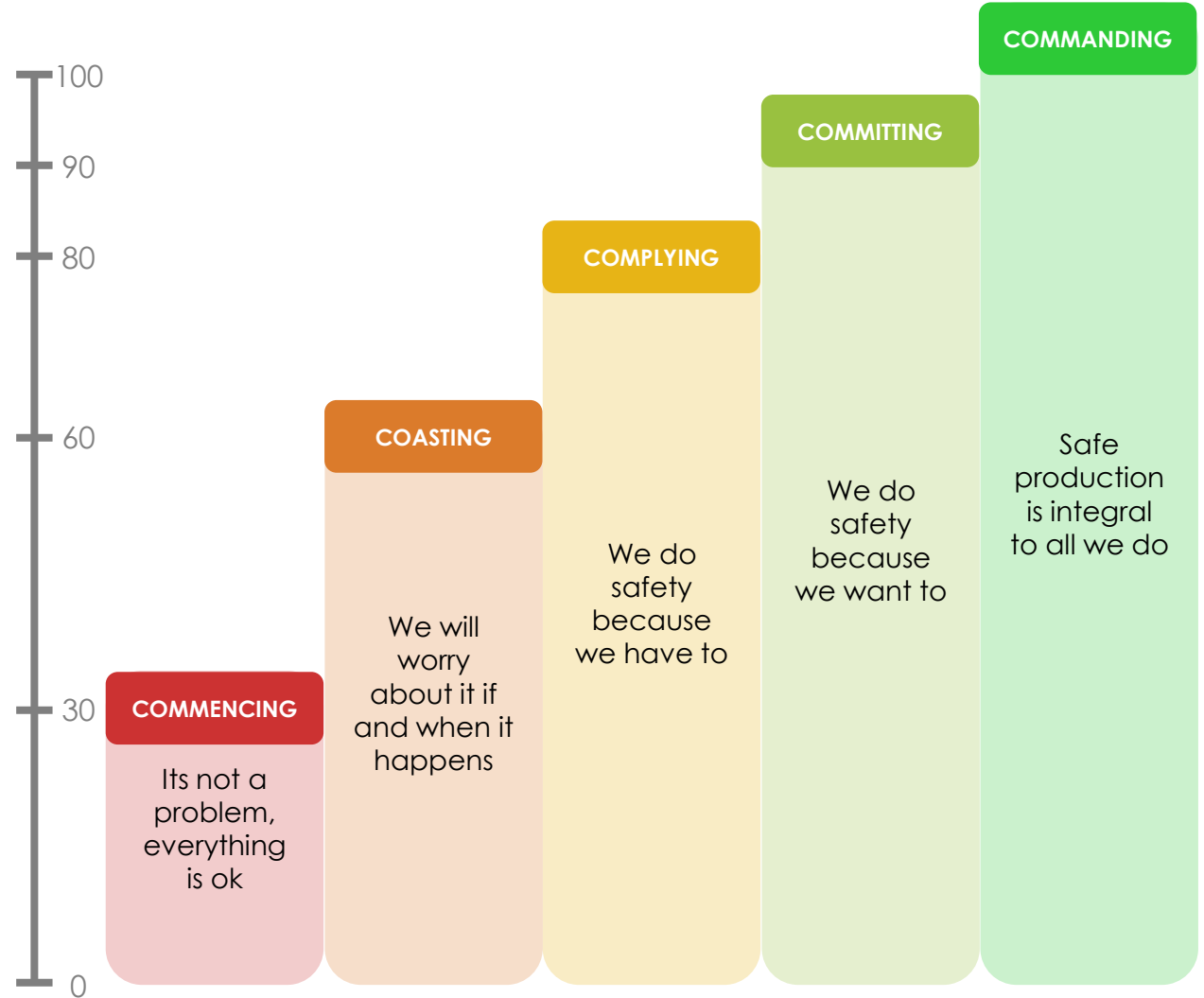
Complying
The goal of an organization is to just meet the minimum requirements which satisfy the regulators, auditors, customers, and stakeholders that things are being done to protect people, assets, and the environment.

Coasting
A minimal effort being invested in improving safety strategy and processes, no clear direction, or systematic attempt, to improve safety.

Commencing
Rudimentary, ad-hoc and chaotic safety processes, lacking structure and largely depending upon the knowledge, skills, and abilities of those doing the work.

COMMANDING — Safe production is integral to all we do

COMMITTING — We do safety because we want to

COMPLYING — We do safety because we have to

COASTING — We will worry about it if and when it happens

COMMENCING — Its not a problem, everything is ok

The PURE framework has 10 functional domains that describe safety culture

The 10 functional domains are based on Seven Broken Safety Cultures, which are consistent root cause themes from major safety catastrophes. To reinforce the role of leadership in the creation of a positive safety culture, we also introduce three core business tools

7 Broken Safety Cultures

- Profit Before Safety
- Just Culture
- Safety Leadership
- Managerial Compliance
- Safety Communication
- Safety Competence
- Lessons Learned

3 Core Business Tools

- Strategy
- Risk Assessment
- Corrective and Preventative Actions (CAPA)

The PURE framework has 10 functional domains that describe safety culture

Strategy

Risk Assessment

Profit Before Safety

Just Culture

Safety Leadership

Managerial Compliance

Safety Communication

Safety Competence

Lessons Learned

Corrective and Preventative Actions (CAPA)

Strategy

There is a strategic safety culture process in place that is being used by all stakeholders in the organization to advance safety culture.

Tier 1 Focus Areas

Have a System (Have)	Support for System (Outcome)

Tier 2 Focus Areas

Leadership	Plan	Process & Tools	Structure	Performance Management	People Participation

Core Business Tools

7 Broken Safety Cultures
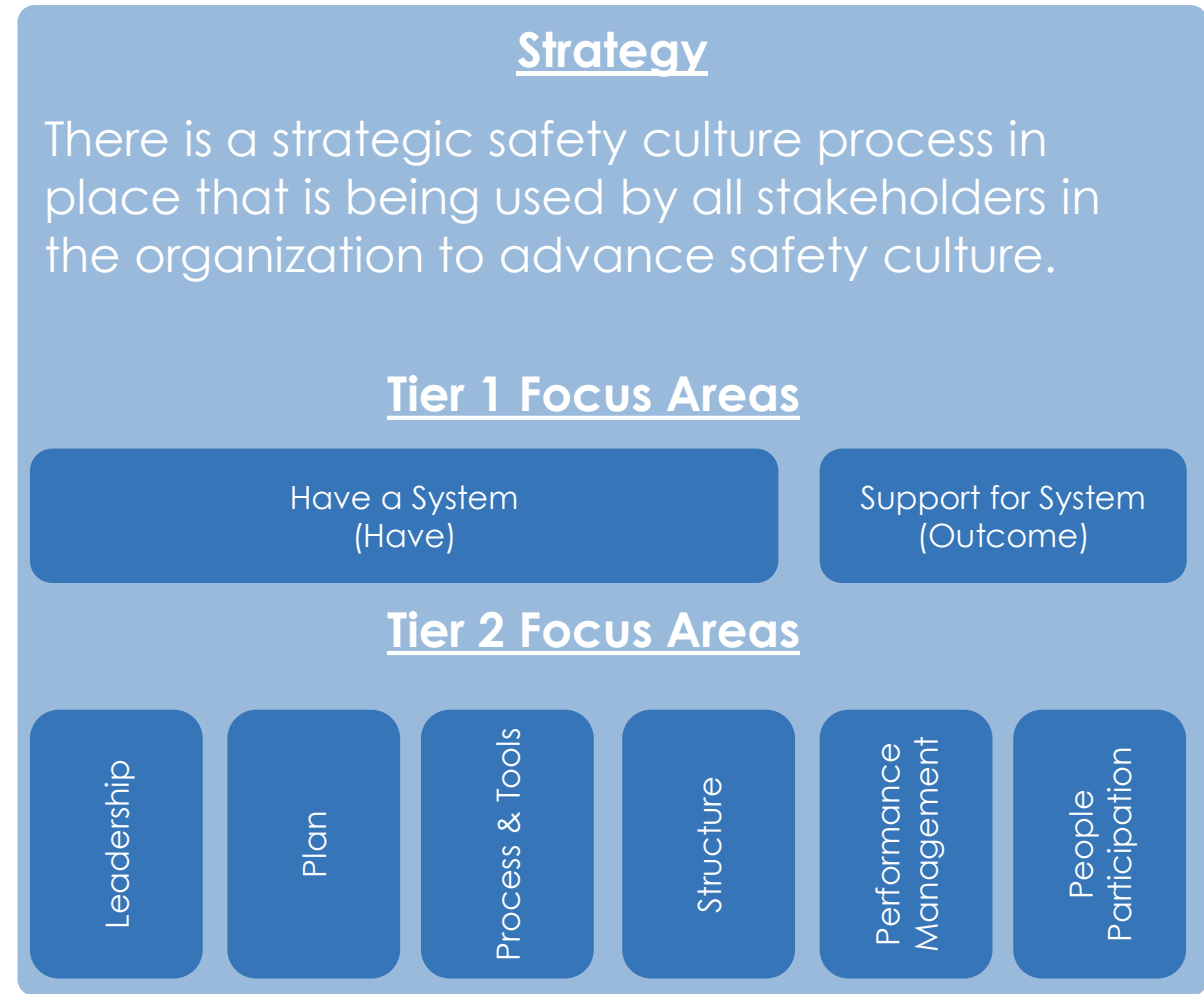
The PURE framework has 10 functional domains that describe safety culture

- Strategy
- **Risk Assessment**
- Profit Before Safety
- Just Culture
- Safety Leadership
- Managerial Compliance
- Safety Communication
- Safety Competence
- Lessons Learned
- Corrective and Preventative Actions (CAPA)

Risk Assessment

Risk assessment is the bedrock of most international safety management system standards and/or regulation,. Risk refers to 'the possibility of harm or loss' presented by the existence of perceived threats arising from situations. Every aspect of operations presents their own threats, and these require formal risk assessments to ensure no harm is experienced to people or assets

Tier 1 Focus Areas

Have a System (Have)	Use the System	Support for System (Outcome)

Tier 2 Focus Areas

Risk Identification	Risk Analysis	Risk Evaluation	Risk Control Hierarchy	Risk Control Implementation	Risk Monitoring and Reviewing	Risk Appraisal

Core Business Tools

7 Broken Safety Cultures

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Profit Before Safety

Instances where productivity comes before safety, as safety is viewed as a cost, not an investment. Ideally, an organization would adopt the philosophy that 'safe-production' is the number one priority, and configure all their processes, resources, and actions accordingly.

Tier 1 Focus Areas

Priority	Resource

Tier 2 Focus Areas

Work Pressure	Planning for Safety	Profit Before Safety

Core Business Tools

7 Broken Safety Cultures

The PURE framework has 10 functional domains that describe safety culture

Strategy

Risk Assessment

Profit Before Safety

Just Culture

Safety Leadership

Managerial Compliance

Safety Communication

Safety Competence

Lessons Learned

Corrective and Preventative Actions (CAPA)

Just Culture

The Just culture domain refers to serious problems remaining hidden and being driven underground by those trying to avoid sanctions or reprimands from their leaders, coworkers, or the public.

Tier 1 Focus Areas

Trust	Blame

Tier 2 Focus Areas

Trust	Mistrust	Distrust	Blame	Collaborative Relationships

Core Business Tools

7 Broken Safety Cultures

The PURE framework has 10 functional domains that describe safety culture

- Strategy
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- Corrective and Preventative Actions (CAPA)

Safety Leadership

Blinkered leadership and the prevailing corporate culture can prevent the recognition of risks and opportunities. In turn, this leads to wrong safety decisions being made at the wrong time, for the wrong reasons. This often stems from leader's lack of knowledge about their safety responsibilities and associated accountabilities; their freedom to act to address safety issues; and a lack of knowledge about pertinent aspects of the safety management system that apply to their sphere of influence

Tier 1 Focus Areas

Responsibility	Accountability	Degrees of Freedom	Knowledge of Safety

Tier 2 Focus Areas

Responsibilities	Accountabilities	Freedom to Act	Knowledge of Safety

The PURE framework has 10 functional domains that describe safety culture

Strategy

Risk Assessment

Profit Before Safety

Just Culture

Safety Leadership

Managerial Compliance

Safety Communication

Safety Competence

Lessons Learned

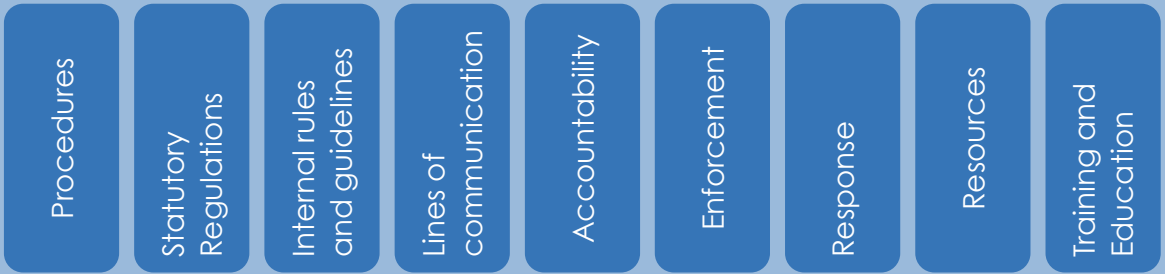Corrective and Preventative Actions (CAPA)

Managerial Compliance

Eighty percent of process safety disasters occur during normal routine everyday operations (64%) and maintenance (16%). This indicates that safety culture improvement initiatives should mostly focus on management and their compliance to rules, procedures, and standards; although it is recognized there can also be non-compliance amongst the workforce and contractors.

Tier 1 Focus Areas

Goals	Focus	Action

Tier 2 Focus Areas

Procedures	Statutory Regulations	Internal rules and guidelines	Lines of communication	Accountability	Enforcement	Response	Resources	Training and Education

The PURE framework has 10 functional domains that describe safety culture

Strategy

Risk Assessment

Profit Before Safety

Just Culture

Safety Leadership

Managerial Compliance

Safety Communication

Safety Competence

Lessons Learned

Corrective and Preventative Actions (CAPA)

Safety Communication

Poor communication has been shown to be a major contributor in many workplace fatality incidents. This Functional Domain is primarily concerned with resolving the problems of 'miscommunication'; where critical safety information is not being relayed to decision-makers and/or the message has been diluted as it reaches its targeted recipients.

Tier 1 Focus Areas

| Messaging (Received) | Flow | Language (Understood) | Two-Way (Acted Upon) |

Tier 2 Focus Areas

| Communications System – Presence, | Communications System – Managerial Control | Message Received | Message Understood | Message Acted Upon |

Core Business Tools

7 Broken Safety Cultures

The PURE framework has 10 functional domains that describe safety culture

Strategy

Risk Assessment

Profit Before Safety

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Corrective and Preventative Actions (CAPA)

Safety Competence

Competency failures are highlighted in many inquiries into safety catastrophes where there were false expectations that direct hires and contractors were highly trained and competent. Competence is multidimensional and includes [a] Cognitive Competence: the ability to learn facts and principles; [b] Functional Competence: the ability to make decisions, plan work, do the work, and solve problems; and [c] Enabling Competence: the ability to lead, communicate, interact with others, and work in a team

Tier 1 Focus Areas

| Enabling Competences | Cognitive Competences | Functional Competences |

Tier 2 Focus Areas

| Competency Mapping | Classification of Competencies | Competency Assessments |

The PURE framework has 10 functional domains that describe safety culture

Strategy

Risk Assessment

Profit Before Safety

Just Culture

Safety Leadership

Managerial Compliance

Safety Communication

Safety Competence

Lessons Learned

Corrective and Preventative Actions (CAPA)

Lessons Learned

'Lessons learned' refers to situations where critical safety information was not extracted from near-misses and/or adverse events; where it was not shared in a timely manner or was not shared at all; nor was the lesson learned enforced. To be termed a lesson learned, there must be an observable and measurable positive change in the behavior(s) associated with the lesson that improves performance in some predefined way.

Tier 1 Focus Areas

System

Reporting

Methodology

Organizational Learning

Tier 2 Focus Areas

Identifying a potential or actual incident

Incident Reporting

Incident Reporting System

Learning Process and Scope

Incident Analysis

Analytic Focus

Prioritizing Solutions

Sharing Lessons Learned

Application of Lessons Learned

Profit Before Safety

The PURE framework has 10 functional domains that describe safety culture

- Strategy
- Risk Assessment
- Profit Before Safety
- Just Culture
- Safety Leadership
- Managerial Compliance
- Safety Communication
- Safety Competence
- Lessons Learned
- Corrective and Preventative Actions (CAPA)

Corrective and Preventative Actions (CAPA)

Corrective and Preventative Actions (CAPA) refers to organizational action(s) required to rectify and/or eliminate future potential adverse events. Corrective actions are aimed at an adverse event that has already occurred, whereas a preventative action is aimed at reducing the potential for an adverse event to occur. Based on a risk assessment of a potential incident and/or a root cause analysis of an incident, effective corrective action and preventive action (CAPA) systems are a key component to continuous improvement FDA.

Tier 1 Focus Areas

Accuracy	Risk Priority	Resource

Tier 2 Focus Areas

Data Collection	Data Analysis	Action Planning	Implementation of agreed Actions	CAPA Process Review

The PURE assessment process

The proposed assessment process will establish a transparent and auditable trail of the process to measure safety culture. It can be undertaken by an independent third party or as a self assessment with CPUC audit for validation purposes.

Assess	Validate	Set Direction

Planning

Focus Group Exercises (~150 attendees)

Onsite observation

Interviews

Document review

Data Analysis

Reporting

Week 0 — Week 1 — Week 2 — Week 3 — Week 4 — Week 5 — Week 6
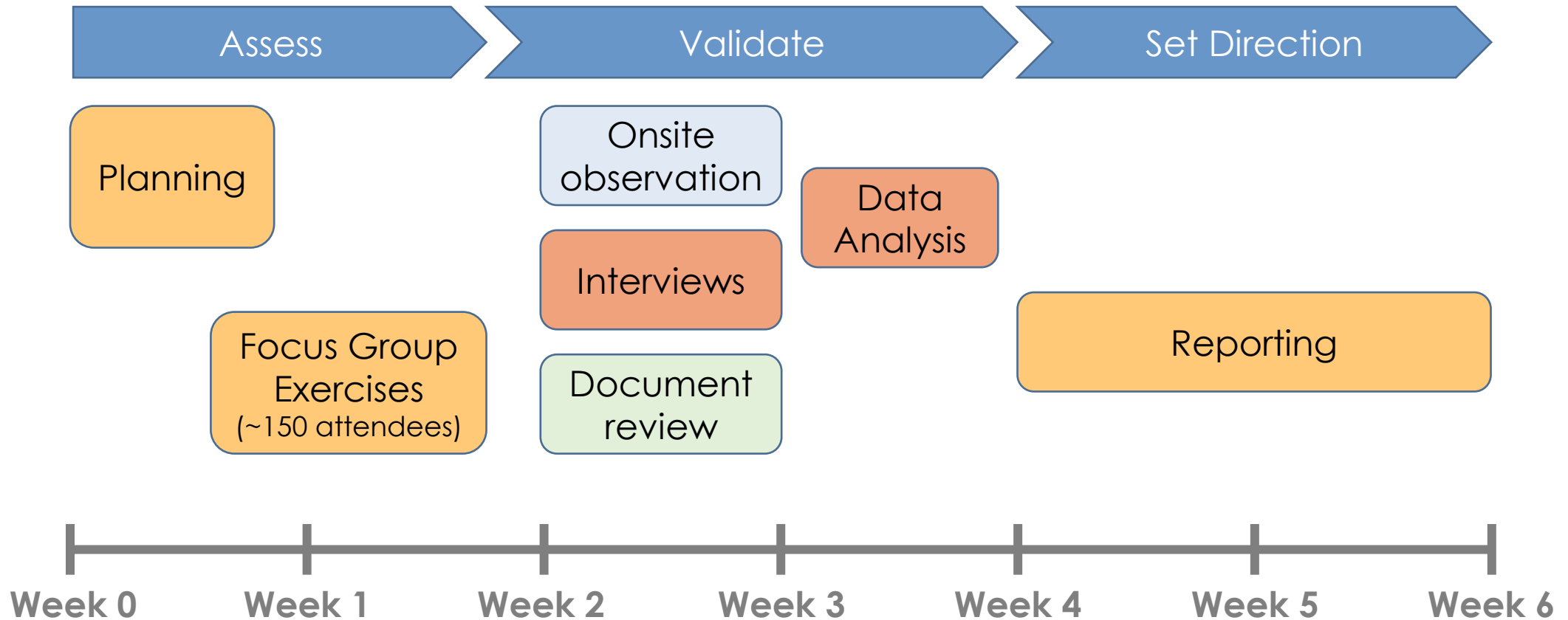
Model scope and reliability

The proposed 10 functional domains comprehensively cover the known causes of all safety catastrophes in the last 30 years. Further, we have demonstrated the model to be the first known safety culture maturity model with concurrent validity (actionable conclusions may be drawn from the data).

Safety Performance Metrics

- Data cleaned and anchored to region
- Regions Ranks by Performance

Identify Utility Staff to Interview

- Priority 1: Inspection & Maintenance, Asset Owners, Construction Managers
- Priority 2: Regional H&S Managers, Asset Management, Operations

Score Region's Safety Culture

- Based on 10 questions derived from Maturity Model Functional Domains

Calculate Reliability

- Statistically "Adequate" reliability for IOS Safety Metrics & Interview Data
- Negative Correlation (Good!) of -0.72 for Personal Safety Metrics
- Complex findings for Process Safety, creates opportunity for CPUC to lead Globally

Complementing existing initiatives

The proposed safety culture maturity model and assessment process completement and reinforce ongoing work by OEIS.

- OEIS Engaged Boston Consulting Group (BCG) in 2020. 5 tools were created:
  1. Wildfire Mitigation Plan Guidelines
  2. Utility Wildfire Maturity Model & Assessment
  3. Utility Survey
  4. Wildfire Mitigation Plan Metrics
  5. Supplemental Data Request
- The OEIS Wildfire Maturity Model had been developed to assess the maturity of very technical aspects of wildfire mitigation
- The Utility survey comprises an employee survey and a Utility Self Assessment. The Employee survey is a measure of safety climate (indicated by the use of a Likert Scale), which measures sentiment in the moment, and is known to be highly variable. A mapping of the employees survey and Self Assessment to the proposed functional domains is adjacent (click through Animation).

Mapping of Employee Survey to Proposed Maturity Model Domains

	Strategy	Risk Assessment	Profit Before Safety	Just Culture	Safety Leadership	Managerial Compliance	Safety Comms	Safety Competence	Lessons Learned	CAPA
Primary Relationship	1	0	4	11	6	2	0	3	3	0
Secondary Relationship	0	7	2	0	4	0	10	0	0	0

Mapping of Utility Self Assessment to Proposed Maturity Model Domains

	Strategy	Risk Assessment	Profit Before Safety	Just Culture	Safety Leadership	Managerial Compliance	Safety Comms	Safety Competence	Lessons Learned	CAPA
Primary Relationship	0	6	1	0	2	1	2	6	2	2
Secondary Relationship	1	2	0	2	2	2	2	0	1	0

OEIS Maturity Model

Options for Regulating Safety Culture

Basic assumptions of the proposed safety culture assessment process

Each IOU is the owner of its own Safety Culture ↔ Safety Culture is a public good that should be prioritized
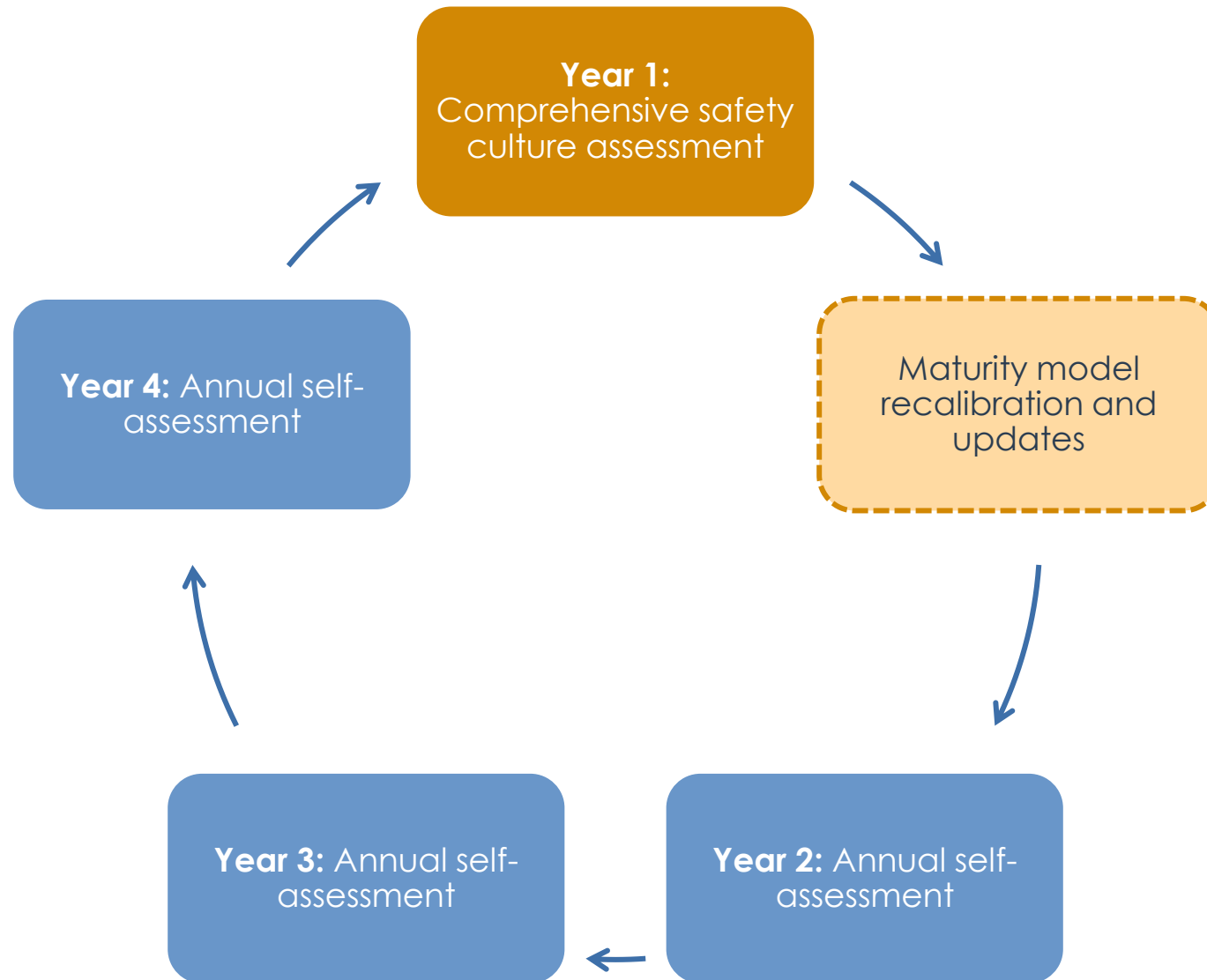
Safety Culture science shows that catastrophic incidents can be linked to "broken" safety cultures ↔ Safety Culture science is still immature and evolving

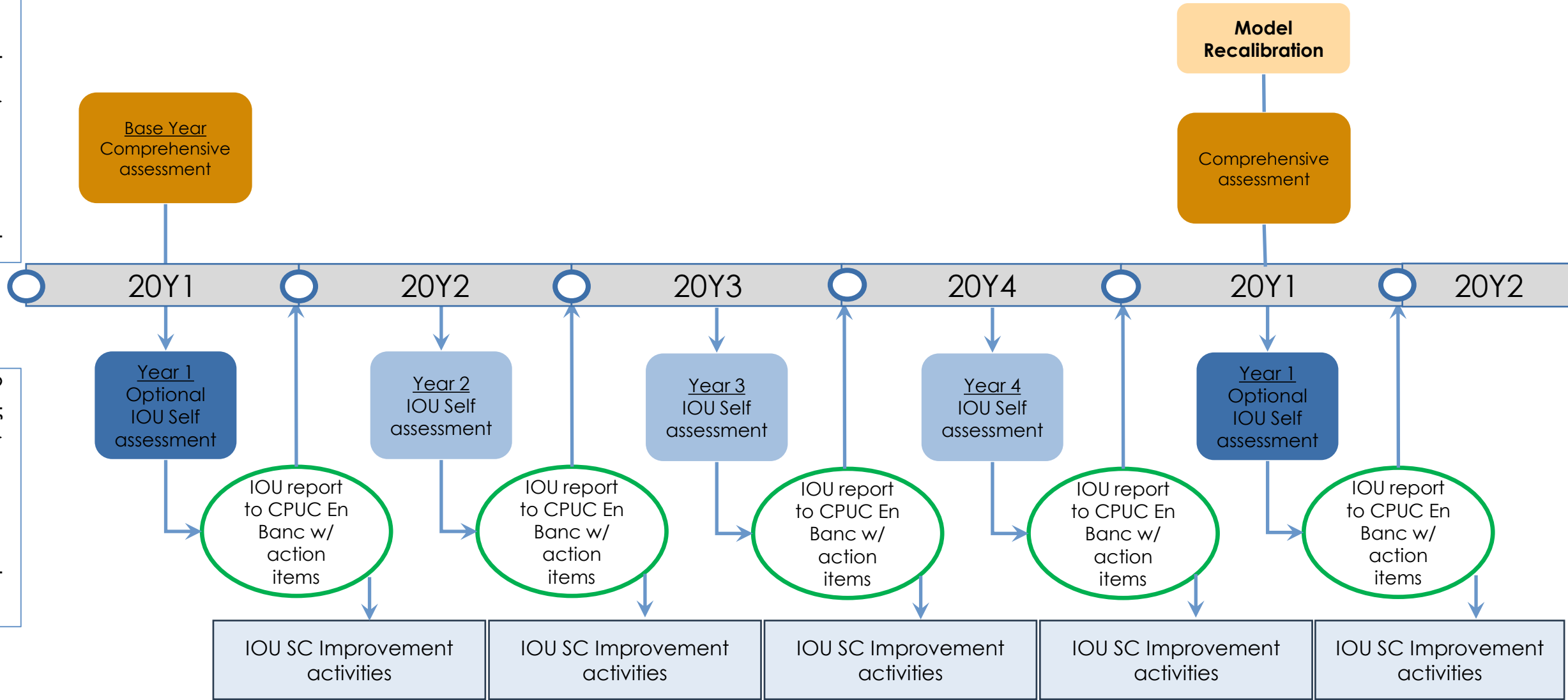Learning, proactive engagement, and continuous improvement are essential elements of improving safety cultures

Continuous improvement process for safety culture

Year 1: Comprehensive safety culture assessment

Maturity model recalibration and updates

Year 2: Annual self-assessment

Year 3: Annual self-assessment

Year 4: Annual self-assessment

Safety culture assessment timeline

Comprehensive assessments; maturity model review and update every four years

Synopsis

- Estimated timeframe: 6 months
- Methods: Interviews, focus groups safety culture perception survey, document review, observations, plus audit of self-assessments, gap analysis, and maturity model recalibration
- Assessor: Independent third party

Purpose

- Keeps the utilities accountable by verifying and validating results of annual assessments
- Identifies blind-spots that the annual assessments may have missed
- Allows CPUC to modify the maturity model and guidelines for the annual assessment to reflect findings

Comprehensive assessments has three elements and produces two distinct follow-up processes

Audit of self-assessments

Review of 4 years of self-assessments

Gap analysis

Resolution between self-assessment and comprehensive assessment

Maturity model recalibration

Updated maturity model

Comprehensive assessment summary report

4-year summary report
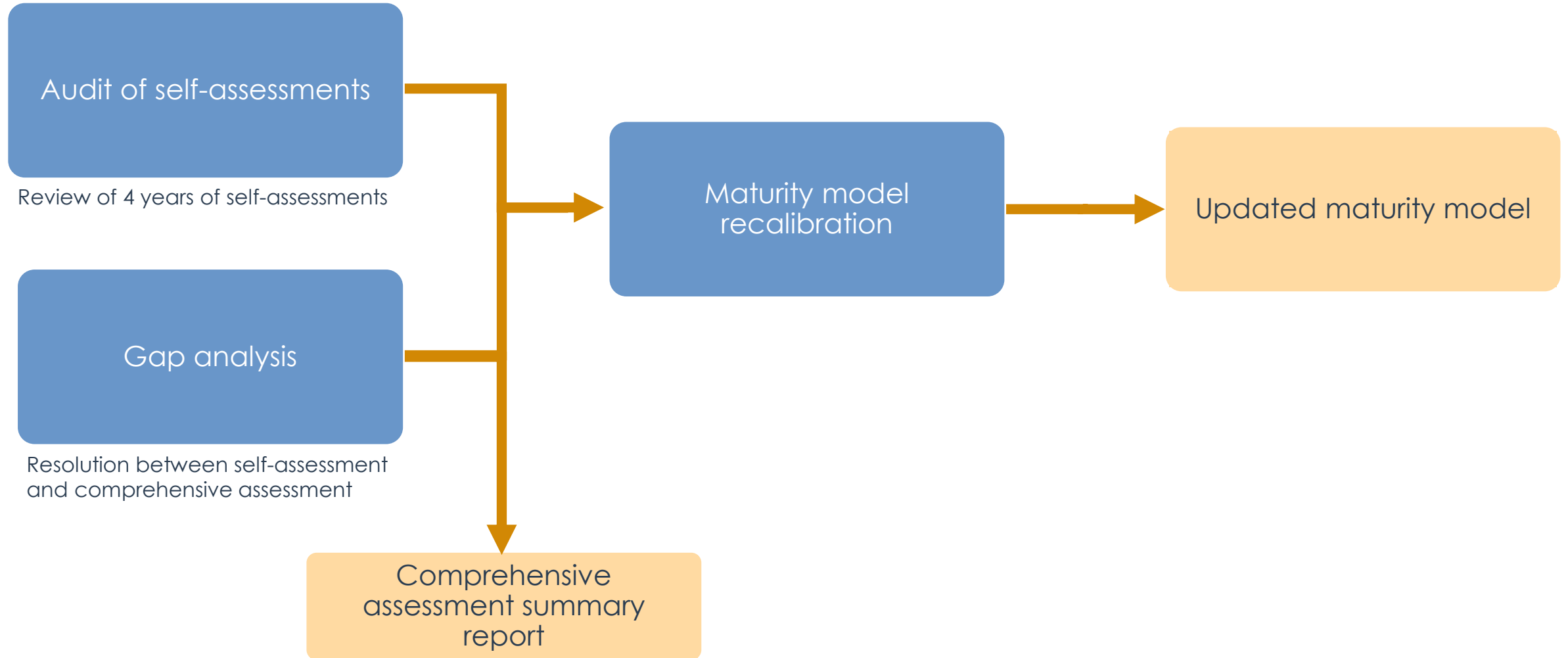
Annual self-assessments

Synopsis

- <u>Estimated timeframe</u>: 1 month
- <u>Methods</u>: focus group exercises, site observations, documentation analysis, personnel interviews, review of safety climate survey results, and review of safety management system audits
- <u>Assessor</u>: Utilities, with possible help of an independent third party for validation

Purpose

- Serves as a progress report to monitor safety culture between comprehensive four-year assessments
- Provides a roadmap for improvement
- Helps to ensure utility ownership of their safety culture
- Creates a track record of data that can be analyzed during the four-year assessment

Proposed safety culture assessment process

The proposed assessment process will establish a transparent and auditable trail of the process to measure Safety Culture, while integrating existing data streams to ensure assessments are reliable and valid.
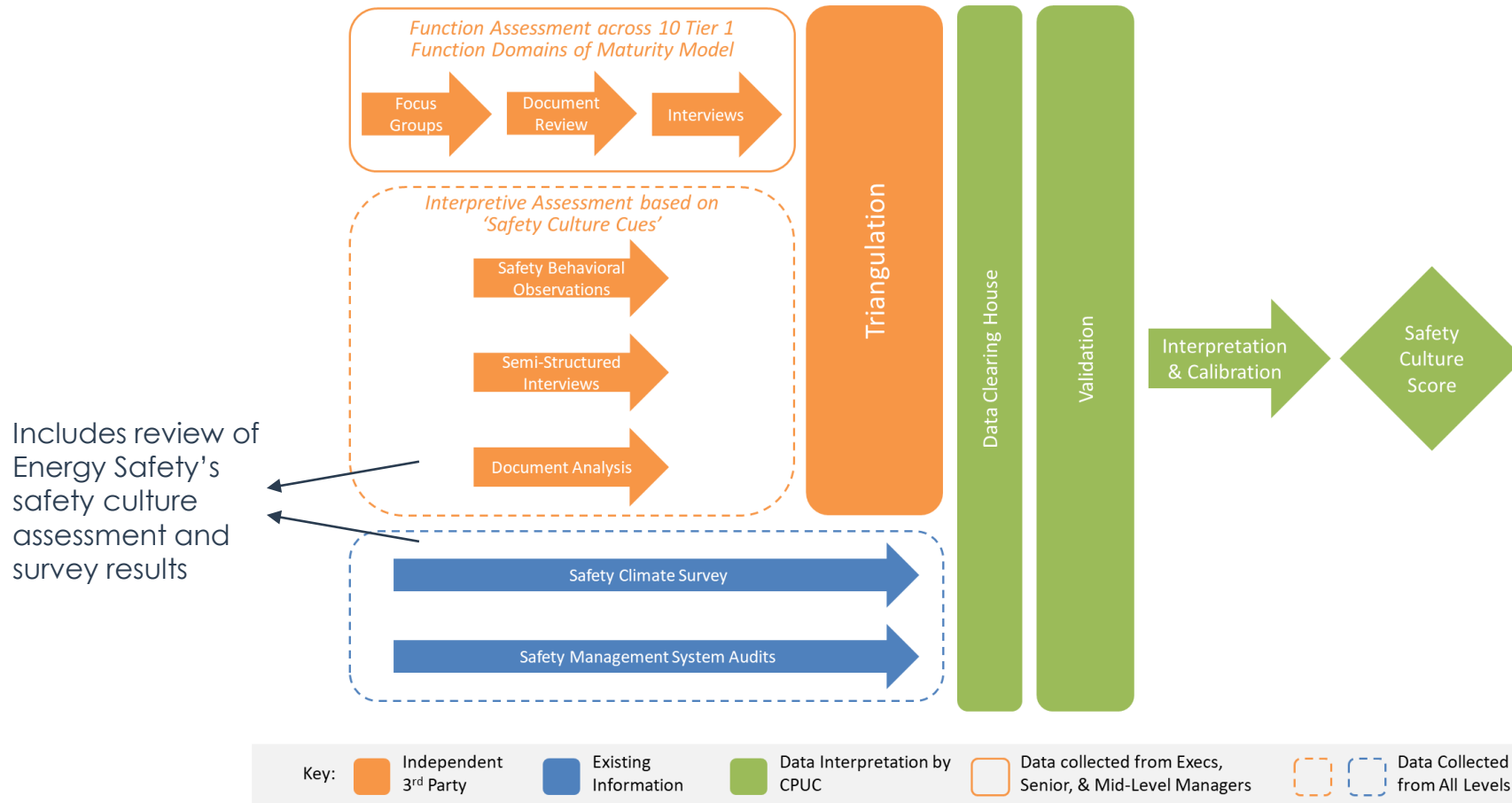
BREAK

10:25am-10:35am

Safety Culture Indicators

10:35am-11:00am

Tier 3 of the PURE model includes a suite of Safety Culture indicators

Tier 1 Maturity Model — **Assess**

The Tier 1 model comprises 10 functional domains that describe the behaviors, actions and characteristics of 5 progressive levels of safety culture maturity.

Prioritize

Tier 2 Maturity Models — **Improve**

At Tier 2, each functional domain is described by a discrete maturity model, each containing a magnitude more attributes than the corresponding Tier 1 model.

Track

Tier 3 Indicators — **Measure**

Tier 3 contains an extensive suite of leading, current and lagging indicators to quantify past performance and predict future performance.

Each functional domain has a set of indicators to monitor the status of that domain

Allows **tracking** of corrective action and improvement initiatives are implemented in each of the 10 domains:

Profit Before Safety	Strategy
Just Culture	Risk Assessment
Safety Leadership	Corrective and Preventative Actions (CAPA)
Managerial Compliance	
Safety Communication	
Safety Competence	
Lessons Learned	

Leading, lagging, and current indicators have been defined for each Tier 2 focus area in the PURE model

Safety Leadership	T1 Focus Areas	T2 Focus Areas	T3 (Lagging Indicators)	T3 (Current Indicators)	T3 (Leading Indicators)
	Responsibility	Leadership Responsibilities	• Number of management interactions with employees • Number of safety inspections per month • Number of legal or internal standards non-conformances identified during safety inspections • Number of times senior management attended safety meetings • Percentage of employees working excessive hours	• Frequency of management interactions with workforce • Percentage of hours worked that managers are present with workforce to provide guidance and support • Percentage of products/services assessed for their health & safety impacts	• Number of times work activities have been stopped due to unsafe conditions or acts
	Accountability	Leadership Accountability	• Number of personnel within organization positively recognized for safety excellence • Number of safety goals met	• Frequency of managerial observations per day • Number of employees volunteering for initiatives • Number of managers /supervisors participating in critical design reviews	• Ratio of unsafe conditions or acts coming from management versus workforce personnel • Ratio of near-hit reports coming from management versus workforce personnel • Frequency of safety meetings attended by senior management • Percentage of safety meetings attended by senior management • Percentage Safety Leadership scores are meeting targets • Percent of positive ratings of managers and supervisors by employees

SPD proposes working with the IOUs to maintain the integrity, veracity, and validity of the list of indicators to ensure their relevance and applicability

Developing indicators is likely an ongoing process that could continue with the utilities after the proceeding and:

- Could build on existing work such as North American Regulators Working Group on Safety Culture: Safety Culture Indicators Research Project (2016), which aimed to identify a suite of safety culture indicators that could be used to facilitate greater awareness and understanding of cultural threats and defenses in the oil and gas industry.

- Should align with but not duplicate existing work such as Safety Performance Metrics and Energy Safety's annual safety culture assessments.

Questions?

Please raise hand, use chat, or use Q&A feature

Operationalizing Safety Outcomes

Western Area Power Administration

11:05am-12:00pm

Topics for Today

- WAPA overview

- Asset Management

- Geographical Information System (GIS)

- Field Strategy for Wildfire Mitigation and Vegetation Management
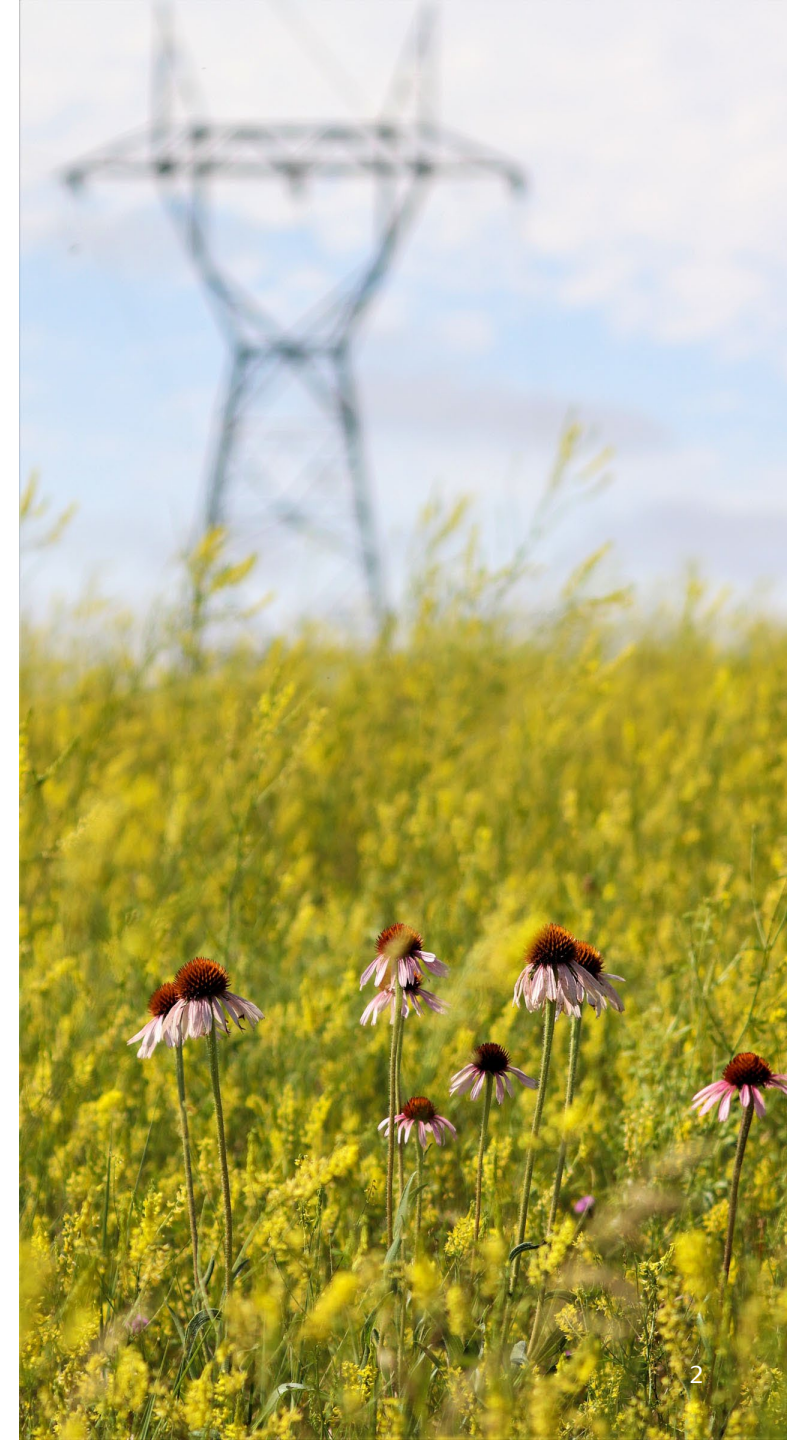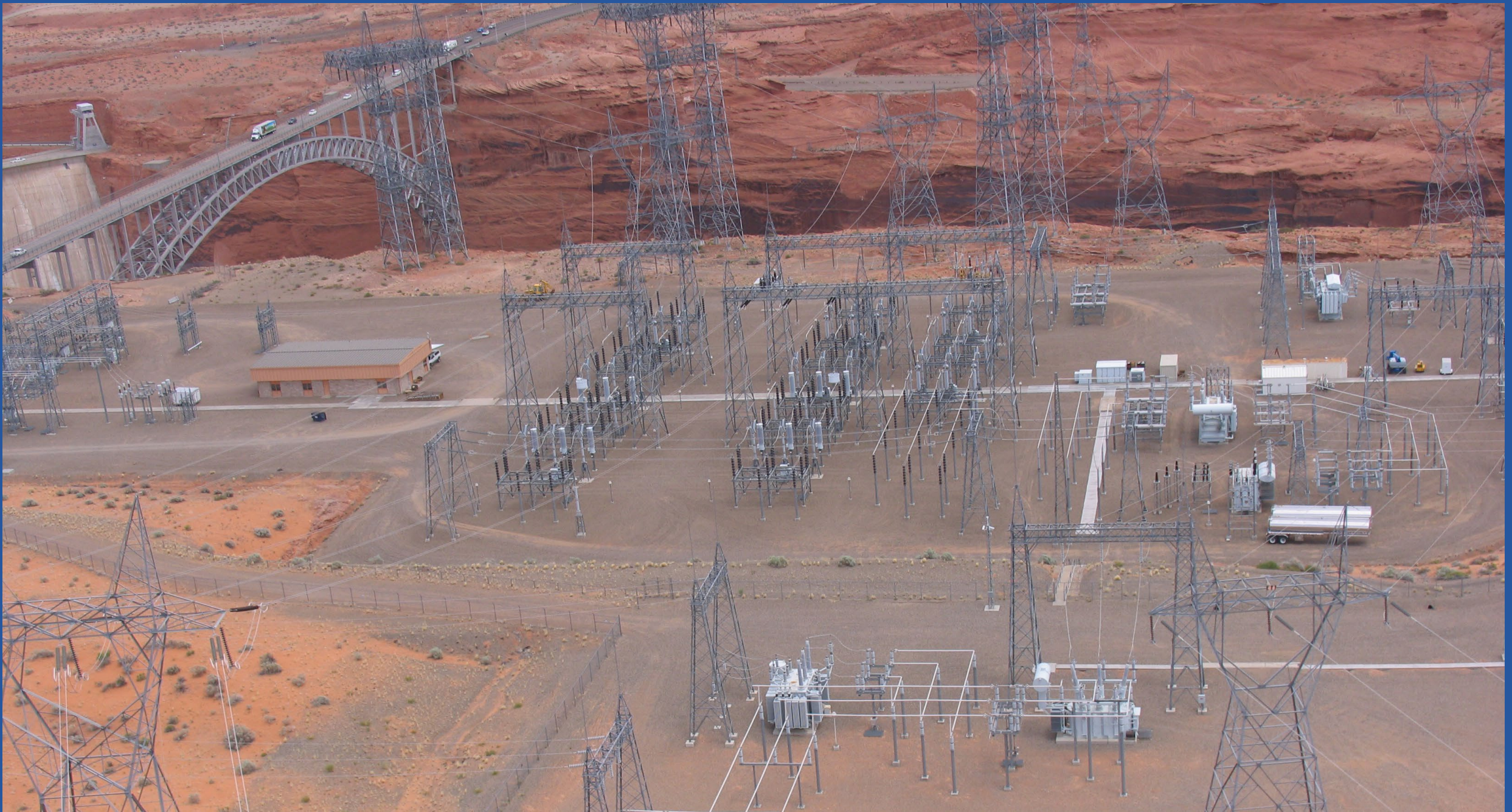
Power Marketing Administration
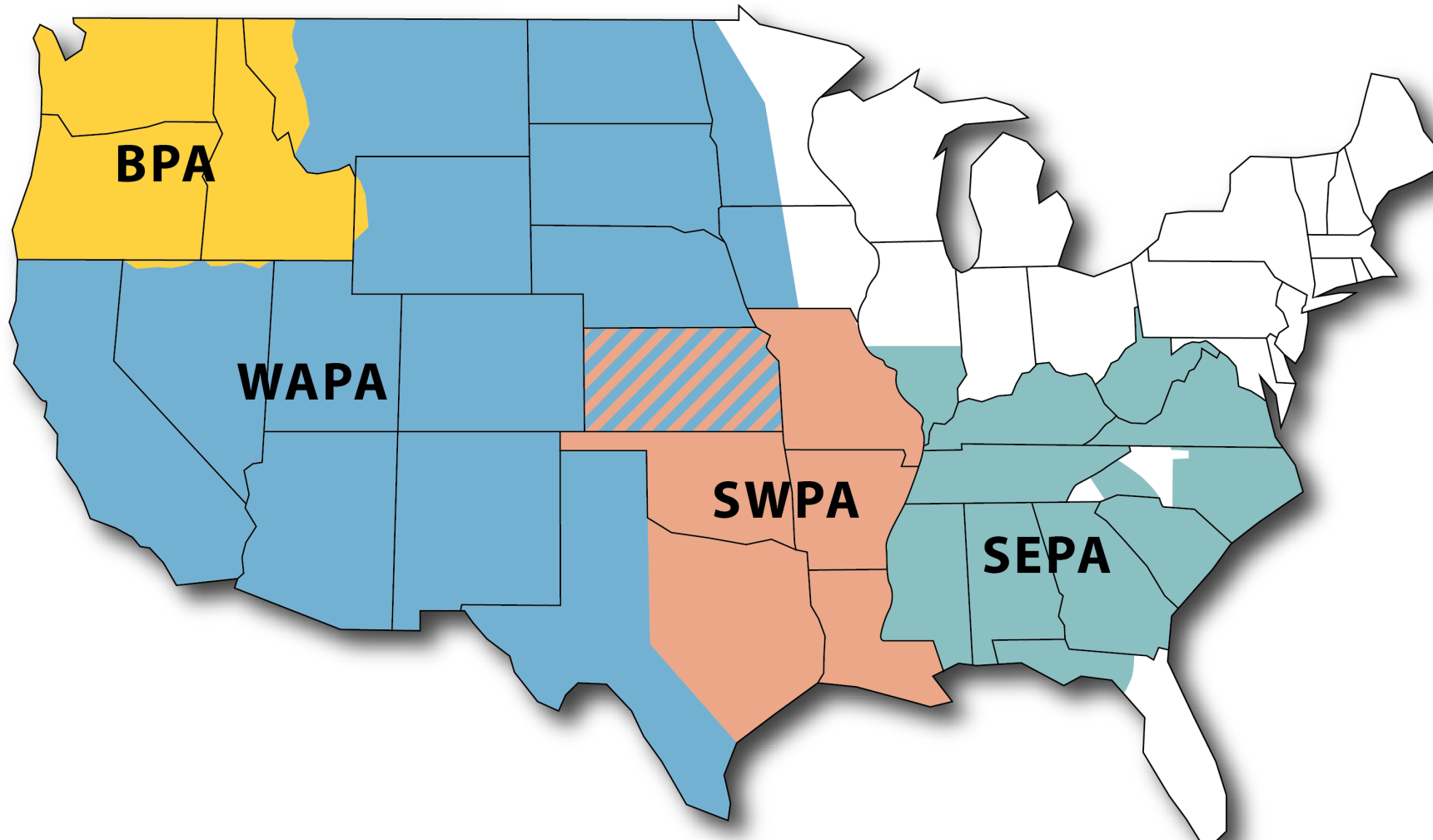
Our power comes from
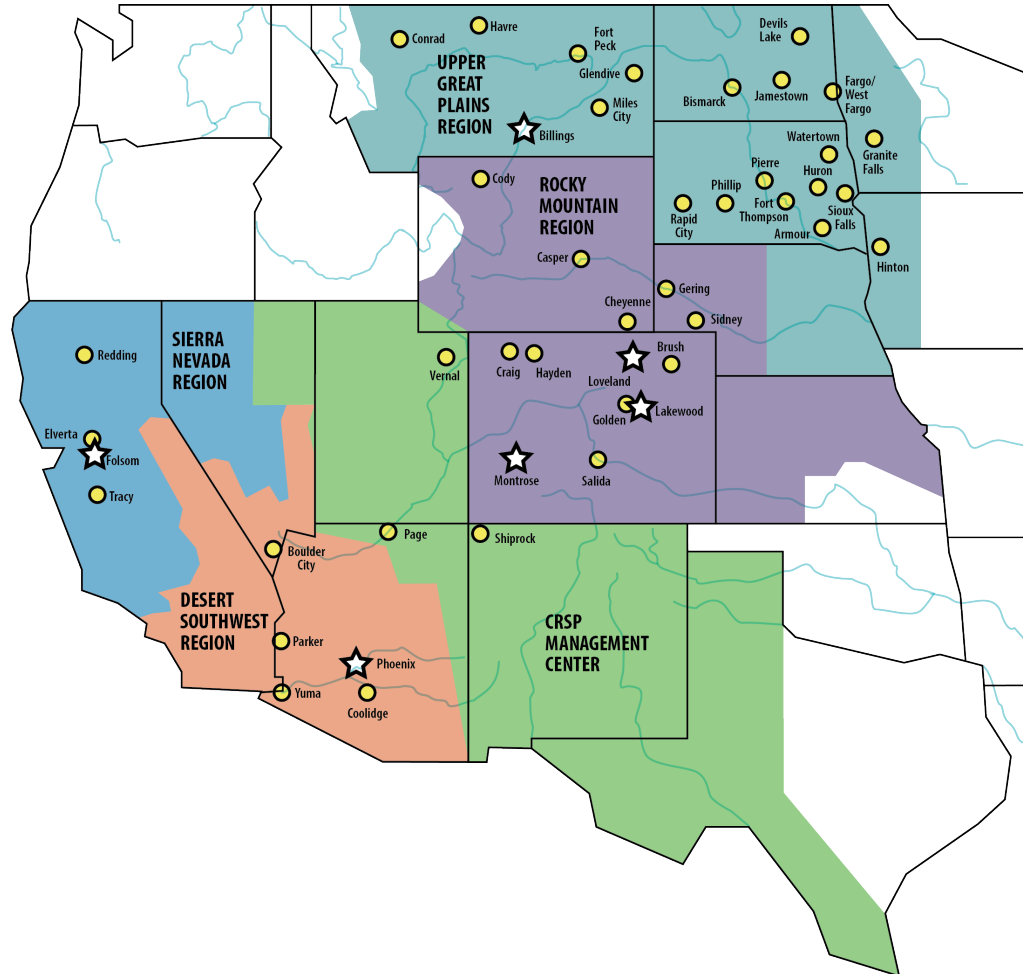
- Hydroelectric energy produced at federal generating agencies

- Multipurpose projects

- Variable water availability

WAPA's Core Values

- Listen to understand, speak with purpose
- Seek. Share. Partner.
- Respect self, others, and the environment
- Do what is right. Do what is safe.
- Be curious, learn more, do better. Repeat.
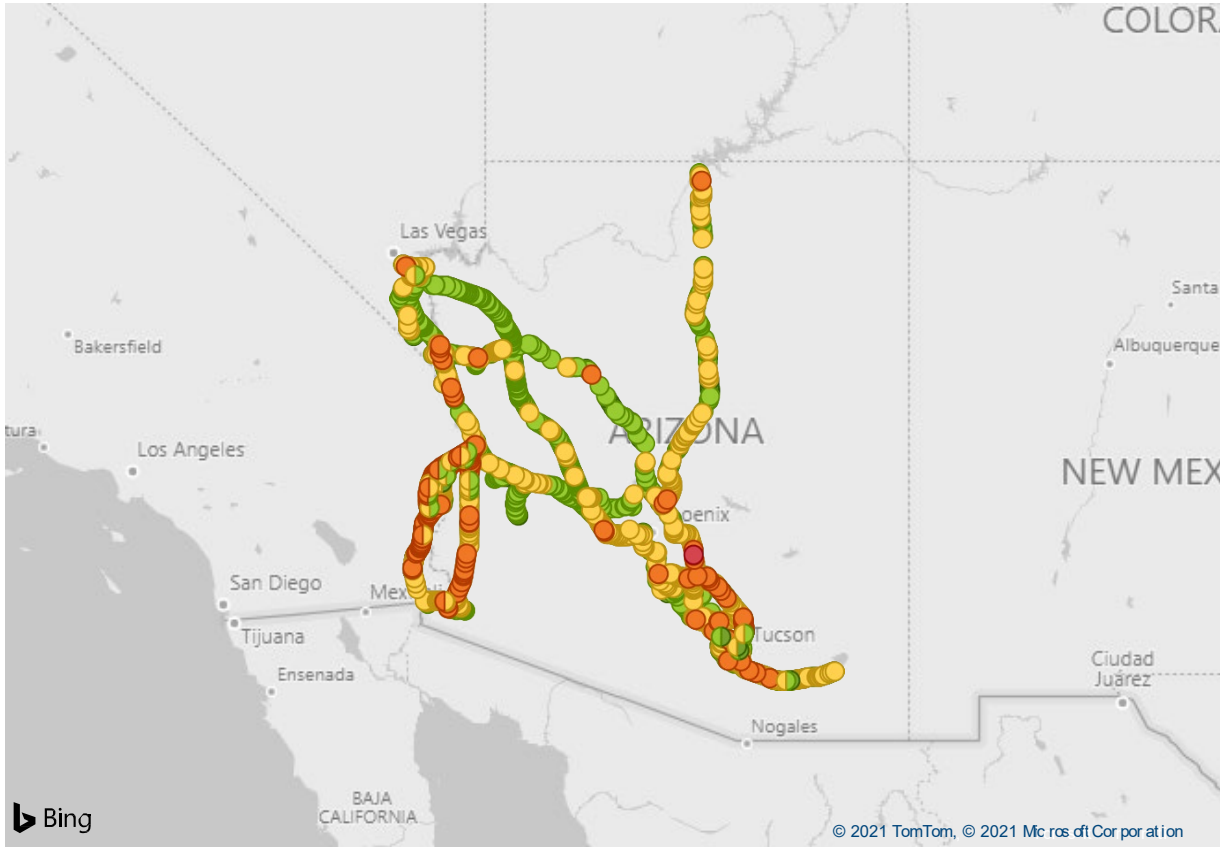- Serve like your lights depend on it.

Asset Management

- Asset data collected routinely from field crew inspections

- Field data is captured and retained in work management databases

- Health index and consequence of failure is derived

- Risk-based data drives asset maintenance and replacement decisions

COMPONENT_BINS ● A-GOOD ● B-MINOR ● C-MODERATE ● D-SERIOUS ● E-RISK

MPR COUNT BY COMPONENT RATING

COMPONENT ⚙	A-GOOD	B-MINOR	C-MODERATE	D-SERIOUS	E-RISK	Total
ANCHOR_MPR	12	13	57	1		83
ARM_BRIDGE_MPR	75	398	19			492
BODY_EXTN_MPR	6	28	12	3		49
BRACE_MPR	542	289	934	31	1	1797
CONDUCTOR_MPR	45	24	32	22	1	124
CROSSARM_MPR	251	1588	619	111		2569
FNDN_MPR	6	151	106	3	2	268
GOATHEAD_MPR		1				1
GUY_MPR	21	52	179	7		259
INSULATOR_MPR	177	639	597	26		1439
KMEMBER_WINDOW_MPR	3	16	3			22
LEG_MEMBER_MPR	1	68	19	11	1	100
POLE_1_MPR	424	1066	894	637		3021
POLE_HW_MPR	11	24	107	13		155
STATIC_MPR	137	82	135	25	2	381
VIBRATION_DAMPER_MPR	5	72	71	1		149
Total	**1716**	**4511**	**3784**	**891**	**7**	**10909**

COMPONENT RATING

COMPONENT_BINS ● A-GOOD ● B-MINOR ● C-MODERATE ● D-SERIOUS ● E-RISK
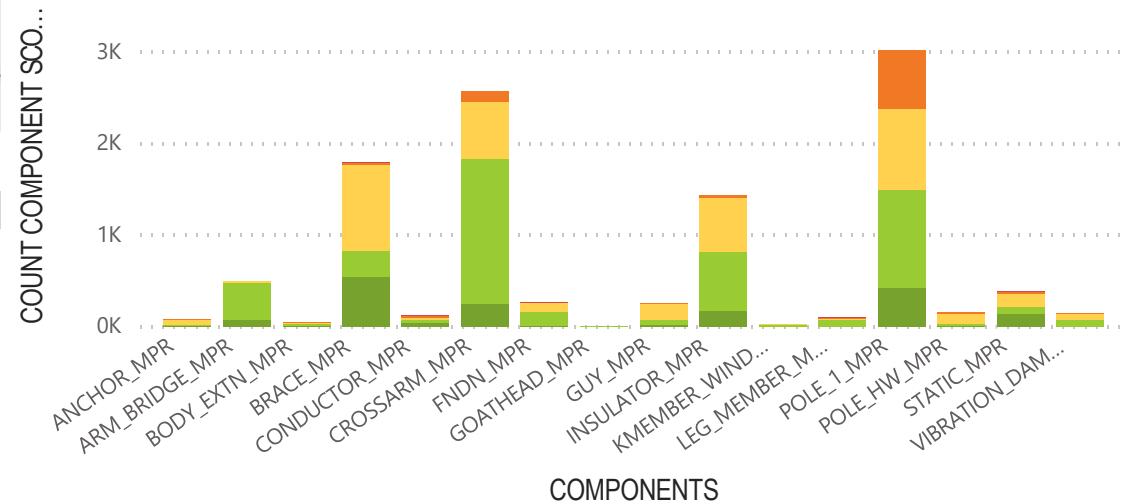
|	
A	Good or like new. No action required.
B	Minor defect. Monitor degradation.
C	Moderate defect. Rehabilitation or replacement recommended as scheduled maintenance.
D	Serious defect. Repair, reinforce, or replace as soon as possible.
E	Risk to public safety or system reliability.

TLINE_DESCRIPTION

☐ BLACK MESA - PARKER, 230 KV, BMA-PAD
☐ BLYTHE - KNOB (BLY-GLT-KNB), 161 KV, BLY-KNB
☐ BOUSE - KOFA, 161 KV, BSE-KOF
☐ BUCKEYE - LIBERTY, 230 KV, BKE-LIB
☐ CASA GRANDE - EMPIRE, 115 KV, CAG-EMP
☐ COOLIDGE - ELECTRICAL DISTRICT 2 NO. 1 (COL...
☐ COOLIDGE - ELECTRICAL DISTRICT 2 NO. 2, 115 ...
☐ COOLIDGE - SUNDANCE NO. 1, 230 KV, COL-SU...

Geographical Information System (GIS)

- System of record of transmission line inspections

- Transmission line inspections include physical and vegetation

- Map-based representation of transmission system and inspection results

- Includes layers such as weather, lightning, wildfire potential, etc. for WAPA's transmission footprint
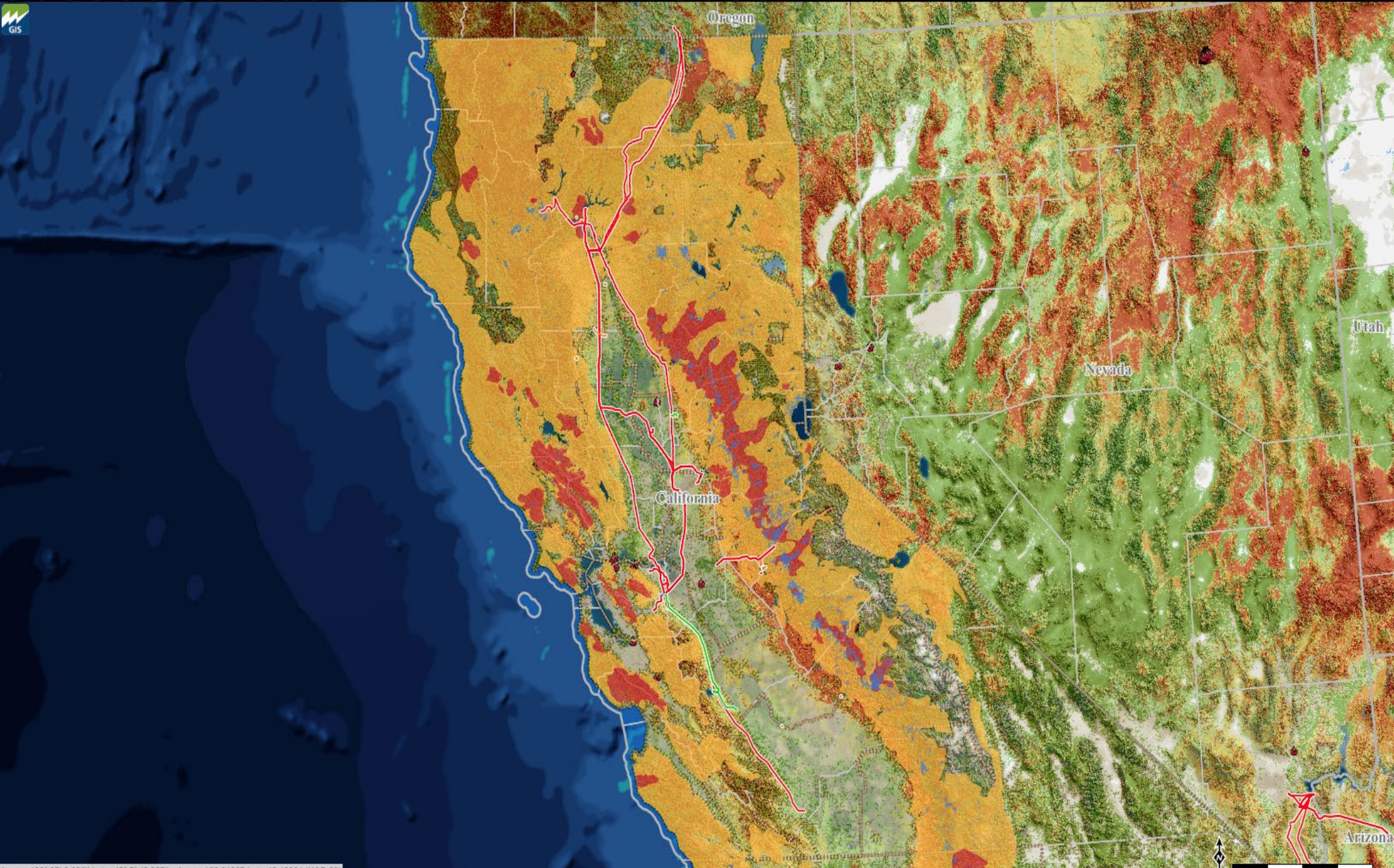
Draw Map

Legend

GIS Layers	A.M. Layers	ENV Layers
ENG Layers	COMM Layers	MISC Layers

✚ Maintenance Inspection Data
▬ Hazards

- ☑ CAL Fire Data/Regions
- ☑ CAL High Fire-Threat
- ☐ Active Fire Data | InciWeb - 7/15/2022 (Incident
- ☐ Active Fire Data | WFICS - 7/15/2022 (NIFC)
- ☑ Active Fire Data | VIIRS - 7/15/2022 (NASA)
- ☐ Severe Fire Weather Potential - 7/15/2022 (USF
- ☐ Wildfire Danger Rating 2020 (USFS)
- ☑ Wildfire Hazard Potential (USDA|USFS)
- ☐ Weather Radar Base Reflectivity (NWS)
- ☐ Flood Zones (FEMA NFHL)
- ☐ Earthquake Hazards - Past 24hrs (USGS)
- ☑ NWS Current Weather Warnings
- ☐ NWS Current Weather Watches
- ☐ Severe Weather Data Inventory (NOAA)

- ☐ Structure Distance to TOS 1
- ☐ Structure Distance to TOS 2
- ☐ Structures by Material Type
- ☐ T-Lines by Miles - B2B
- ☐ T-Lines by Crew
- ☐ T-Lines by Maintenance Office
- ☐ T-Lines by Owner

Reference Map   Scale 1: 3,086,942

Lon = -128° 37' 0.026" Lat = 42° 7' 42.987"   Lon= -128.61667 Lat= 42.12861 (NAD 83)
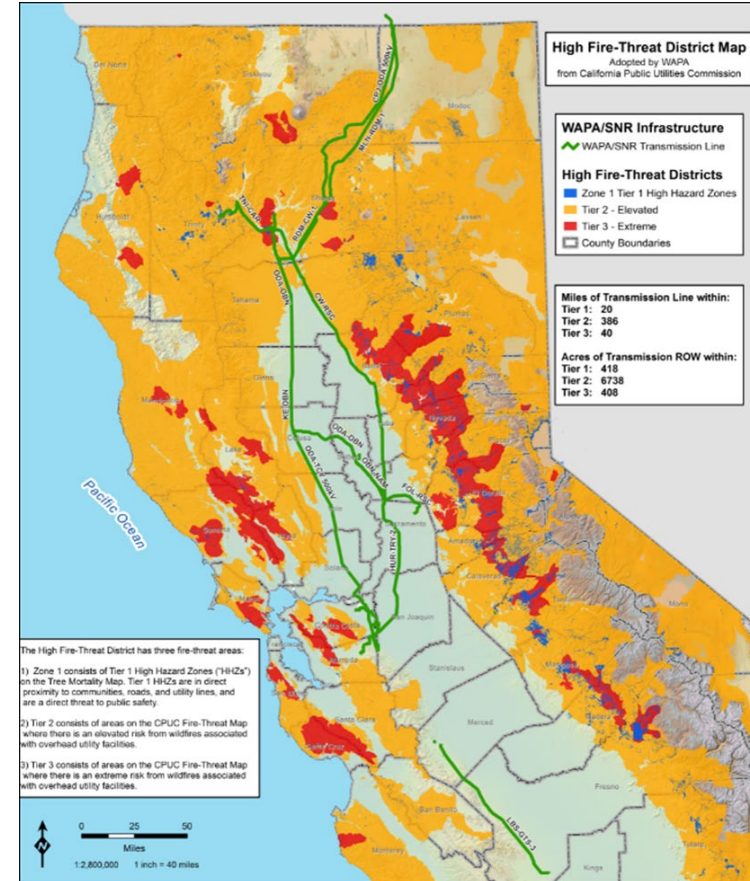
0 21 42 63 84 mi

WAPA SNR Vegetation Management and Wildfire Mitigation Program

- Program overview

- Staffing and support

- Service area

WAPA SNR Wildfire Mitigation Plan

- Plan overview

- Goals and objectives

- Accomplishments and challenges

Understanding the Hazards and Risks

- Site conditions

- Equipment

- People on the job

- Situational awareness

Mitigating the Hazards and Risks

- Layers of protection

- Using available tools and resources

- Experienced managers and field personnel

- Communication

Lessons Learned

- Documenting and analyzing incidents and near-misses

- Adapting and modifying programs to incorporate lessons

- Sharing experiences and takeaways

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LUNCH

12:00pm-1:00pm

Facilitated Discussion, Next Steps, and Closing

1:00pm-2:00pm

Facilitated Discussion

- Is the PURE maturity model compatible with maturity models used internally by the IOUs?

- How should the Commission maintain and improve the integrity, veracity and validity of safety culture indicators that track and monitor improvement within each domain?

Next steps: Written feedback

- **Written feedback for TWG #1 and #2:**
  - Comments due August 15
  - Reply comments due August 29

- **Written feedback for TWG #3 and #4:**
  - Instructions will be sent after today's meeting

Next steps: Upcoming meetings

- **All-party meeting – *early fall 2022:***
  - Debrief information discussed in TWGs to date
  - Review and synthesize feedback received in rulings after the TWGs
  - Provide additional input on scoping memo questions (including assessment process, independent third party to conduct assessments, and indicators)
  - Discuss next steps for developing staff proposal

- **Final workshop – *mid fall 2022:***
  - Discuss and provide feedback on draft staff proposal and maturity model

Closing Remarks

Questions?

Please raise hand, use chat, or use Q&A feature

THANK YOU