Wildfire Safety Advisory Board Meeting

March 5, 2025, 9:00 a.m.

Hybrid Meeting
Elihu M. Harris Building, Room 1
1515 Clay St, Oakland, CA 94612-1413

Participation Information

Using more than one participation option may create feedback

Please begin your comment by stating your name and organization

- **Microsoft Teams:** https://www.microsoft.com/en-us/microsoft-teams/join-a-meeting

  Meeting ID: 279 149 576 86 | Passcode: B2xF94xe

- **Phone:** 1 (469) 998-6045 US Toll-free | Conference ID: 871 473 141#

  Participants will be placed on mute in "listen-only" mode until the public comment portion of the meeting. Once the public comment portions of the meeting begin, participants may dial **#5** (pound/hashtag five) when they wish to speak to be placed in a queue. The hosting team will unmute callers in order of request.

- **Email:** Written comments may be emailed to WSAB@energysafety.ca.gov.

- **Technical Issues:** e-mail WSAB@energysafety.ca.gov or call Unique Coleman at 916-709-3079

Locating Meeting Materials

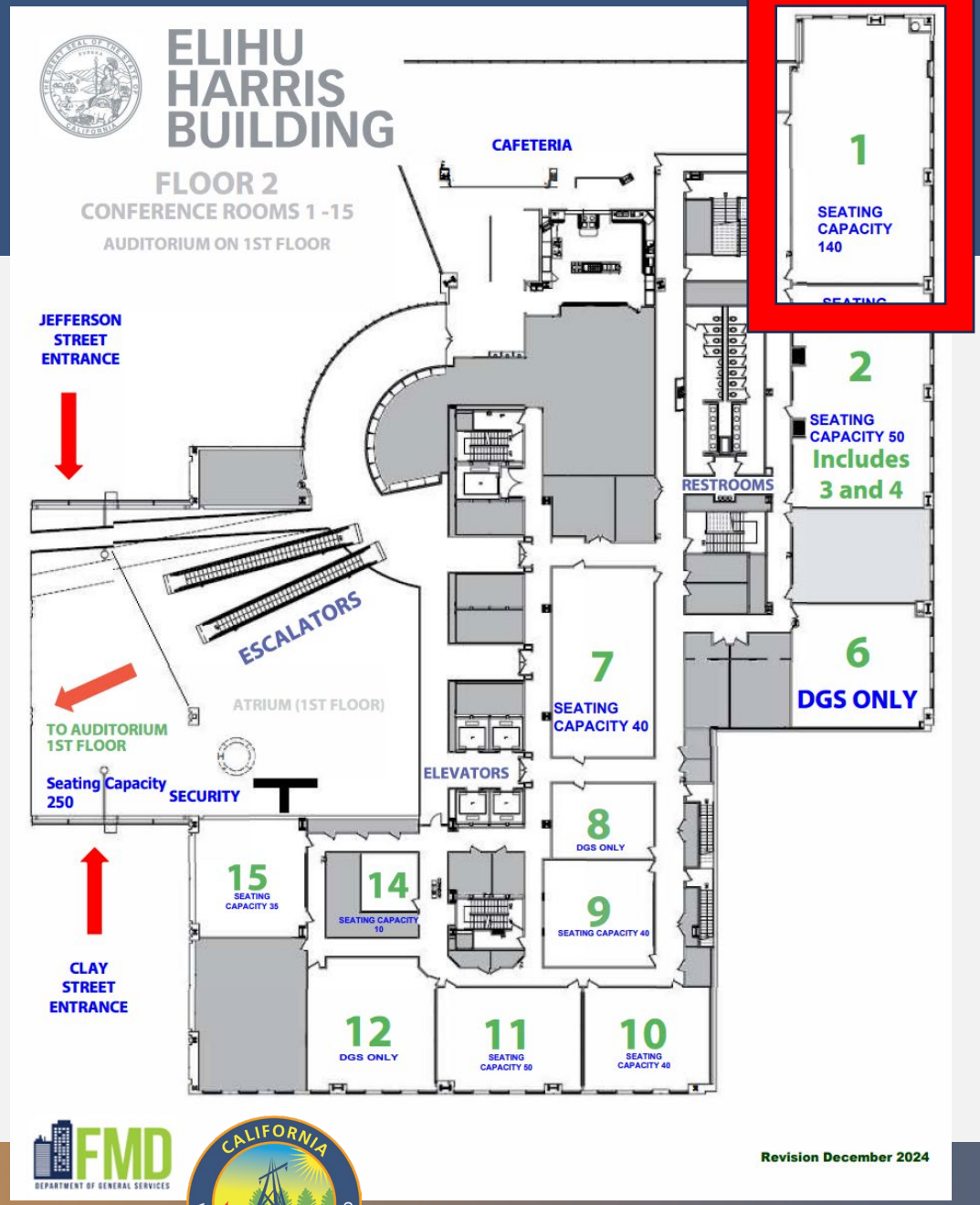
Meeting Materials Are Available at:

https://energysafety.ca.gov/what-we-do/wildfire-safety-advisory-board/wsab-events-and-meetings/

Written Public Comments Are Available at:

https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2025-WSAB-WSAB

Safety Briefing



1 - Call to Order and Roll Call

- Ralph Armstrong Jr.
- Jessica Block, Chair
- Marybel Batjer
- Tim Haines
- John Mader
- Chris Porter, Vice Chair
- Alexandra Syphard

Agenda

1. Welcome, Call to Order, and Roll Call
2. Presentation and Board Statements on the January 2025 Fires in Southern California
3. Strategic Planning Discussion
4. Officer Elections
5. Energy Safety Consultation on Fiscal Year (FY) 2026-2027 Budget
6. Office of Energy Infrastructure Safety (Energy Safety) Update
7. Staff Update and Work Plan Discussion
8. Committee Selection
9. Panel Discussion on Risk Modeling and Data
10. Meeting Minutes
11. Agenda Items for Future Meetings
12. Public Comment on Matters Not Included on the Agenda
13. Adjournment

2 - Presentation and Board Statements on the Jan 2025 Fires in Southern California

Timothy Werle

Fire Captain II, Los Angeles Fire Department

Director, Fire Integrated Real-Time Intelligence System Program Fusion Center

Governor's Office of Emergency Services

3 - Strategic Planning Discussion

Dr. Keirsten Taillon
Founder & CEO
MaxPotentials

3 - Strategic Planning Discussion Implementation Plan 1/4

2/27/2025

Priority	Objective	Action	Action Status
Priority 1: Actualizing Our Mission in Collaboration with the Office of Energy Infrastructure Safety Priority Steward: Chris Porter	Develop in-person engagement with Energy Safety.	Establish monthly calls between Executive Committee and Energy Safety Program Manager	Complete
		Establish quarterly calls between Chair and Energy Safety Director	Complete
	Delegate administrative authority to WSAB.	Agree with Energy Safety on process to make budget requests	Complete
		Adopt request to Energy Safety for resources	In progress
	Discover Energy Safety needs / wants for setting WSAB Priorities.	For September 2024 Work Plan: Staff ask Energy Safety for input	Complete
		For March 2025 Work Plan update: Staff to ask Energy Safety for input	In progress
	Share WSAB priorities and expertise with Energy Safety.	Staff to introduce WSAB, its priorities and areas of expertise to other Energy Safety divisions	Complete
		Staff work to better understand Energy Safety work and priorities	Ongoing

3 - Strategic Planning Discussion
Implementation Plan 2/4

Priority	Objective	Action	Action Status
Priority 2: Building Collaborative Relationships with External Partners Priority Steward: Jessica Block	Establish meaningful, mutually beneficial, and consistent practices for communicating with key partners.	Identify key partners	Complete
		Set regular cadence of internal review of communication with each key partner	Complete
		Meet with key partners and communicate key messages	Complete
	Develop clear priorities for mission related collaborative efforts.	Develop messages for key partners	Behind
	Create communication practices and calendar interaction activities to support relationship development and collaboration	Where appropriate, set regular cadence of meetings and follow-up with key partners	Ongoing

3 - Strategic Planning Discussion Implementation Plan 3/4

Priority	Objective	Action	Action Status
Priority 3: Retaining and Developing Staff Priority Steward: Mark	Develop improved employee retention practices.	Provide each staffer with one or more projects on which they are the lead	Complete
		Build sense of teamwork among staff	Ongoing
		Recognize individual contributions	Ongoing
	Create opportunities for career development for WSAB staff members.	Hold initial discussions of career development	Complete
		Develop annual individual development plans	In progress
		Staffers complete formal training	Ongoing
		Include staff in meetings with Board Members and key partners	Ongoing
	Create work practices that support staff members' work success and allow for work life balance.	Encourage and allow time off for vacation and family responsibilities	Ongoing
		Maximize benefits of agency RTO policies	Ongoing

3 - Strategic Planning Discussion
Implementation Plan 4/4

Priority	Objective	Action	Action Status
Priority 4: Creating the Structures and Practices for Successful Implementation Priority Steward: Mark	WSAB has established and consistently applies effective project management practices.	Develop project plans for major work products	Ongoing
		Establish schedule of Board meetings, and associated deadlines such as agenda posting, well in advance	Complete
		Schedule Committee meetings for Board Member input into key work products	Behind
		Develop staff guide and checklists for recurring processes	Behind
	Plan and facilitate open meetings to allow for appropriate strategic collaboration.	Develop Board meeting topics and speakers to provide information and support collaboration	Ongoing
		Promote Board meetings through media outreach; website development; use of email lists; individual invitations	Ongoing
	Establish cohesive vision and roles and responsibilities.	Develop and propose vision to Board	In progress
	Ensure current activities are sufficiently resourced.	Develop work plan	Complete
		Update work plan	In progress
	Create sufficient cadence of communication between Board and staff.	Establish recurring Committee meetings	Behind

3 - Strategic Planning Discussion
Resource Prioritization

The proposed principles for prioritization of staff resources are to select activities that:

1) Advance the Board's mission
2) Prioritize topics within Board's statutory mandate, by:
    a) Ensuring staff supports the Board in meeting statutory deadlines
    b) Focusing resources on topics identified in statute, including requests from Energy Safety
    c) Targeting outputs to key audiences identified in statute
3) Prioritize topics with the highest impact or effect on wildfire risk, including by:
    a) Considering overall impact, including size of the potential risk reduction and the likelihood of implementation
    b) Identifying a well-defined outcome from each activity
    c) Incorporating timeliness, e.g., when an output can align with process deadlines at Energy Safety or publicly-owned utilities or rural electrical cooperatives
4) Prioritize topics where the Board has unique value, i.e., where it is the best or only organization to address the topic
5) Prioritize topics that take advantage of the particular expertise of one or more Board Members
6) Support Strategic Planning priorities

4 – Officer Elections

LUNCH BREAK

California Wildfire Safety Advisory Board

California Wildfire Safety Advisory Board

WE ARE BACK!

5 – Energy Safety Consultation on Fiscal Year 2026-2027 Budget

6 - ENERGY SAFETY POLICY DIVISION (ESPD) BRIEFING

Lorin Sabin
Program and Project Supervisor
Safety Culture Assessment Branch

AGENDA

- Overview of ESPD Workstream Activities:
  - Wildfire Mitigation Plans
  - Risk Model Working Group
  - Safety Culture Assessments
  - Executive Compensation Structures
  - Safety Certifications


WILDFIRE
MITIGATION
PLANS

WILDFIRE MITIGATION PLANS (WMPs)

2025 WMP Update Evaluations

- CPUC ratified Energy Safety's Decisions for the 2025 WMP Updates of PG&E, SDG&E, SCE, Bear Valley, Trans Bay Cable, and Horizon West.
- Energy Safety published draft Decisions for Liberty (1/27/2025), PacifiCorp (2/11/2025), and LS Power Decision (2/18/2025).
- Energy Safety denied a Change Order Request from SDG&E on 2/24/2025 and directed SDG&E to submit a Petition to Amend by 4/10/2025.

WILDFIRE MITIGATION PLANS (WMPs)

Guidelines

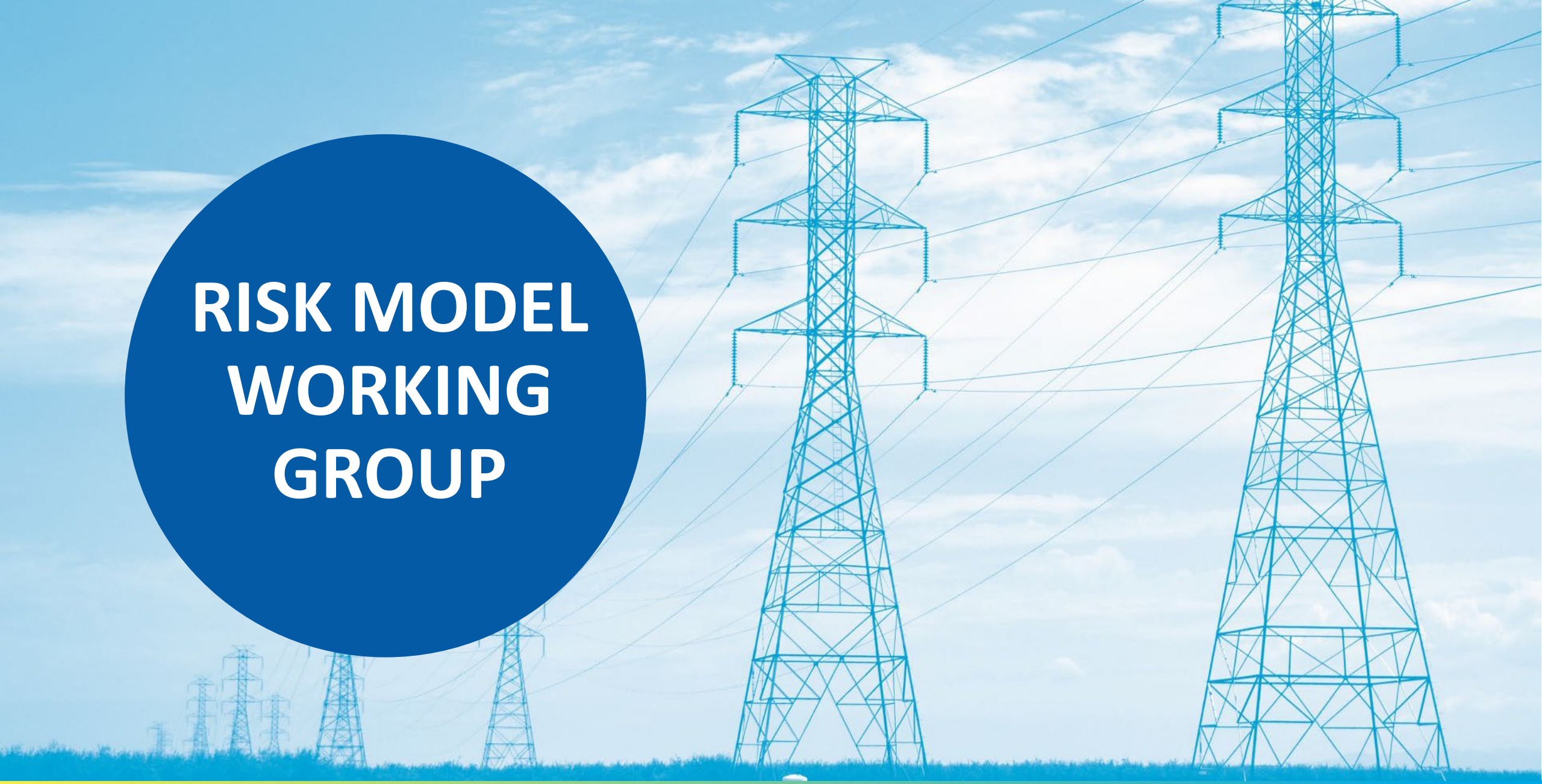
- ❑ Energy Safety adopted the WMP Guidelines on 2/21/2025.
- ❑ Includes:
  - Process & Evaluation Chapter
  - Base WMP Technical Requirements Chapter
  - Petition to Amend Chapter
  - ITO Modified Requirements Chapter
- ❑ Energy Safety published the draft Maturity Model and Survey Guidelines on 2/10/2025. The public comment period is open and will close on 3/12/205.
- ❑ WMP Update Guidelines Chapter to be developed this year.

WILDFIRE MITIGATION PLANS – BASE WMPs

2026-2028 Base WMPs

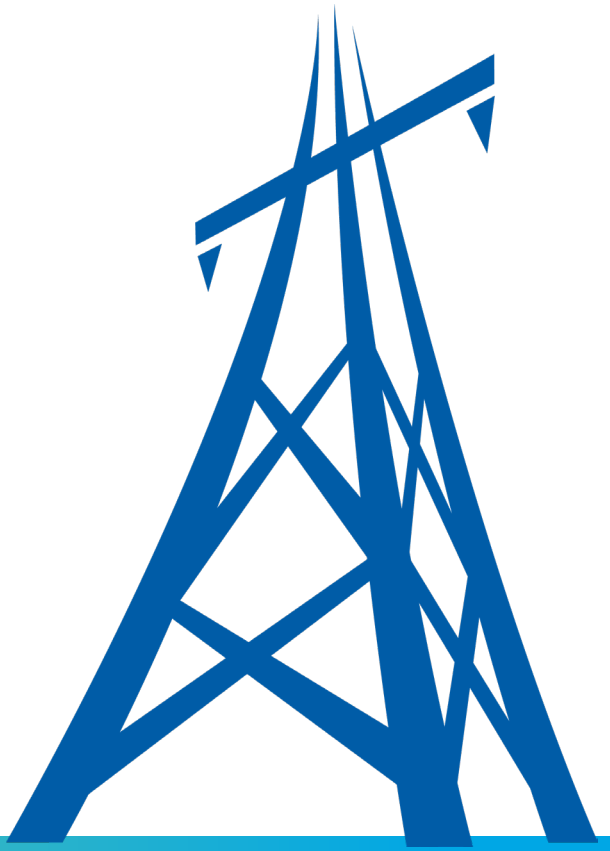
- Energy Safety published the submission schedule to the 2026-2028 Base WMPs docket on 1/27/2025.
- Base WMPs will be staggered this year with one electrical corporation submitting every two weeks beginning 4/4/2025, whereas in prior years WMPs were submitted in groups.
- Public workshops will occur in May and August; more info (notice, agenda) will be published to the docket.

RISK MODEL WORKING GROUP



RISK MODEL WORKING GROUP (RMWG)

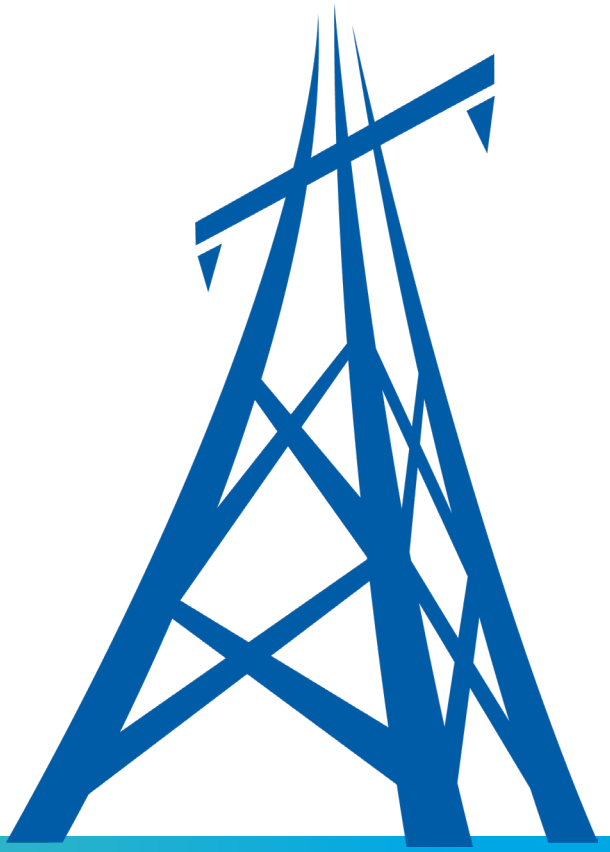
- Energy Safety proposed the development of a “best practices” document as an outcome for the RMWG.
- A proposed outline was provided at the January 2025 RMWG meeting.
- Attendee comments were discussed at the February 2025 RMWG meeting.
- RMWG meetings through 2026 will involve collaborating with attendees to write each section.




SAFETY
CULTURE
ASSESSMENTS

SAFETY CULTURE ASSESSMENTS (SCAs)

- ❑ 2024 SCA Process
  - Energy Safety adopted the 2024 Guidelines on 12/17/2024 and began the 2024 SCA Process in January 2025.
    - Electrical corporation workforce surveys were completed on 2/28/2025.
    - Electrical corporation management self-assessments and focus groups are scheduled to be completed by the end of Q1 2025.
  - Energy Safety's 2024 SCA reports for ECs are scheduled to be published in Q3 2025.
- ❑ 2025 SCA Process
  - Energy Safety's 2025 SCA process is scheduled to begin in late Q3 2025.
- ❑ Energy Safety coordinated with the CPUC on their SCA process.

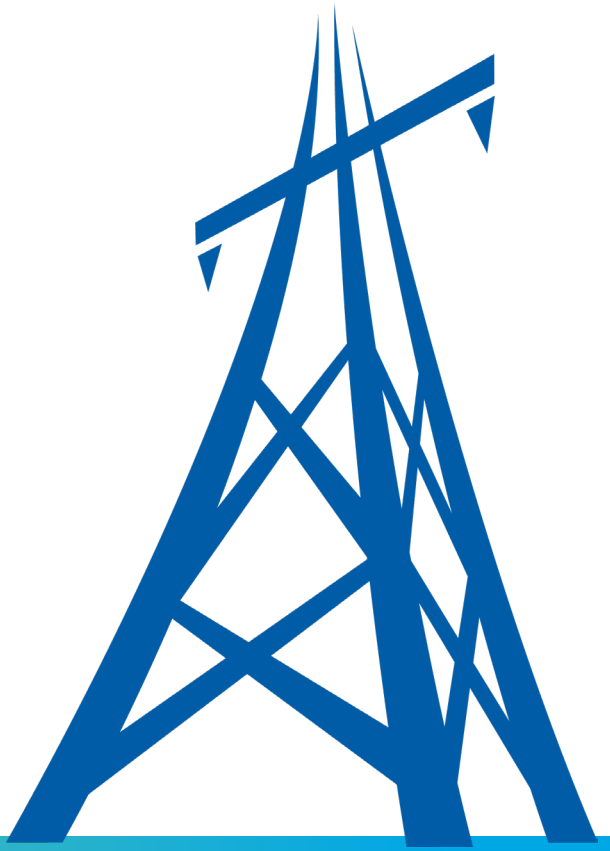


EXECUTIVE COMPENSATION STRUCTURES

EXECUTIVE COMPENSATION STRUCTURES

Guidelines

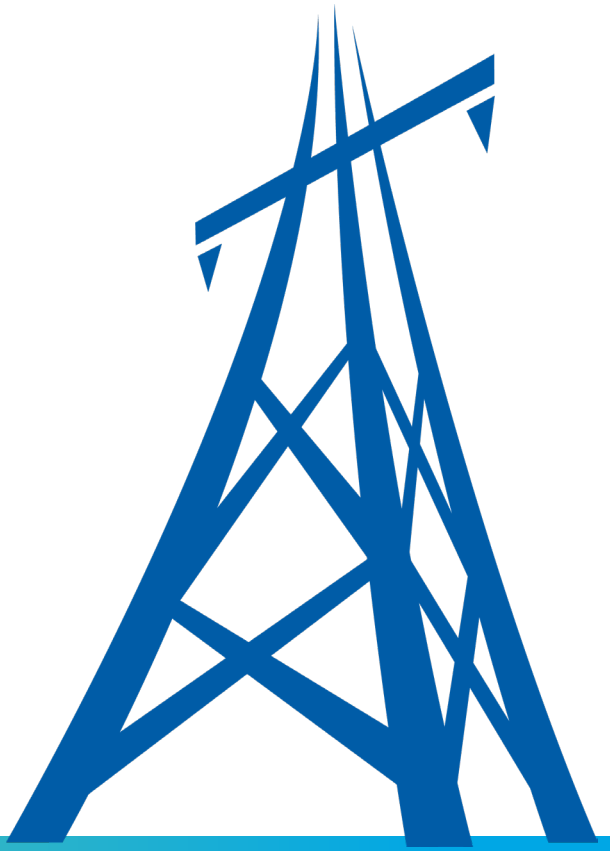
- Energy Safety published the draft Executive Compensation Structure Guidelines on 2/28/2025.
- The public comment period is open and will close on 3/31/2025.



SAFETY CERTIFICATIONS

SAFETY CERTIFICATIONS

- Energy Safety issued Safety Certifications for BVES, PG&E, SCE, SDG&E on 12/8/2024.
- Energy Safety is currently updating the Safety Certification Guidelines and developing the annual 2025 schedule.



DATA DRIVEN
FORWARD-THINKING
INNOVATIVE
SAFETY FOCUSED

www.energysafety.ca.gov

OFFICE OF ENERGY INFRASTRUCTURE SAFETY
A California Natural Resources Agency

715 P Street, 15th Floor
Sacramento, CA 95814
916.902.6000

7 – Staff Update and Work Plan Discussion

Potential workstreams:

1. **Advisory Opinions on Publicly Owned Utilities' and Rural Electrical Cooperatives' Wildfire Mitigation Plans**
2. **Recommendations to Energy Safety**
3. **Risk Modeling**
4. **Safety Culture Assessment**
5. **Catalog and Review of Past Recommendations and Their Effectiveness**
6. **Site Visits**
7. **Administration and Supervision**

8 – Committee Selection

Potential Committee Membership for Discussion

	Ralph Armstrong	Marybel Batjer	Jessica Block	Tim Haines	John Mader	Chris Porter	Alexandra Syphard
Executive Committee						Lead	
Publicly Owned Utilities Committee						Lead	
Strategic Planning Committee				Lead			
SCA Committee	Lead						
Risk Modeling Committee			Lead				
Past Recommendations Review Committee					Lead		
Vegetation Management Best Management Practices Committee							Lead

9 – Panel Discussion on Risk Modeling and Data

WIFIRE Lab, University of California, San Diego

İlkay Altıntaş, PhD, Director

Office of Energy Infrastructure Safety Data Analytics Division

Shafi Mohammed, Chief Data Officer
Jenni Reed, Analytics Unit Supervisor
Stefan Schonsheck, PhD, Research Data Specialist II

Working Together Toward Risk Awareness and Mitigation using Open Data and Models

İlkay ALTINTAŞ, Ph.D.

Chief Data Science Officer & Division Director of Cyberinfrastructure and Convergence Research and Education, **San Diego Supercomputer Center**
Founding Faculty Fellow, **Halıcıoğlu Data Science Institute**
Founding Director, **Workflows for Data Science Center of Excellence**
Founding Director, **WIFIRE Lab**
University of California, San Diego

Joint Faculty Appointee, **Los Alamos National Laboratory**

SAN DIEGO SUPERCOMPUTER CENTER

UC San Diego

Presentation for California Wildfire Safety Advisory Board Meeting

March 5, 2025 (Remote participation.)

UC San Diego

WIFIRE

Mission: Develop technologies with the fire management community driven by cutting-edge science and data

Vision: Enable tools that can have an impact at the scale of the environmental challenges we face today

wifire.ucsd.edu/

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Mitigating from increasing megafire threat is very challenging, pressing and costly for utilities.

Grid Hardening

Modernization and Fireproofing

Maintenance

Sensing, Inspection, and Quality Assurance Standards

Vegetation Management

Prune, Remove and Replace

Risk Awareness

Weather and Risk Forecasting

Public Safety Power Shut-Offs

De-energization

Response

Real-time Fire Management and Community Support

Risk Awareness and Mitigation requires

actionable weather and fire modeling

before, during, and after a fire.

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

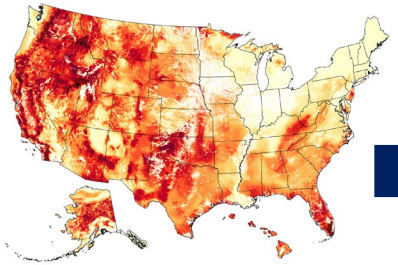
When it comes to fire and weather modeling, one size does not fit all...

Slide adopted from: Rod Linn

Los Alamos NATIONAL LABORATORY EST. 1943

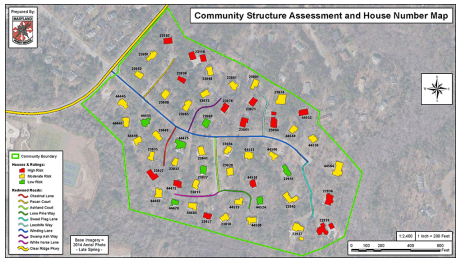
Simulation speed requirements

Real time wildfire management support under severe fire conditions



Community risk assesment

Community planning



Fuel treatment optimization

Resource-benefit decisions for wildfires

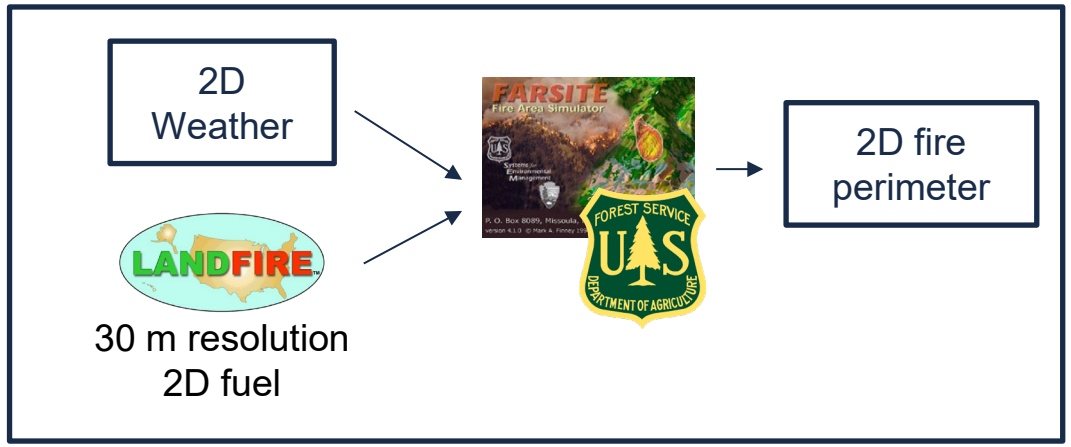
Site-specific prescribed fire tactic development

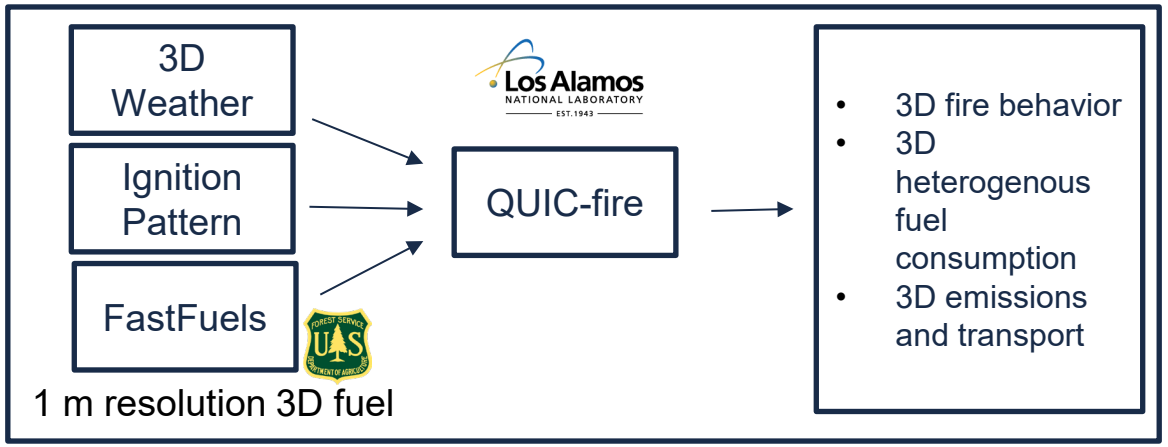
Ecosystem sustainability and risk management planning

Complexity and detail requirements

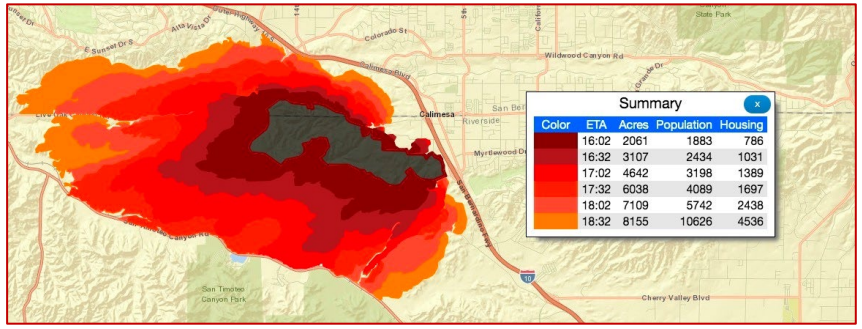
İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

2D vs. 3D

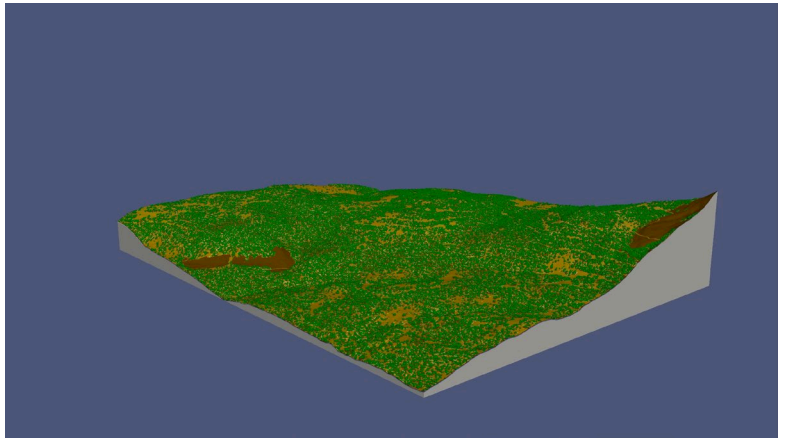




Collaboration with Rod Linn (LANL), Kevin Hiers (TTRS) and Russ Parsons (USFS)



From 30m resolution in 2D … **To** 1m resolution in 3D



İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

Next generation fire science needs data from many sources.

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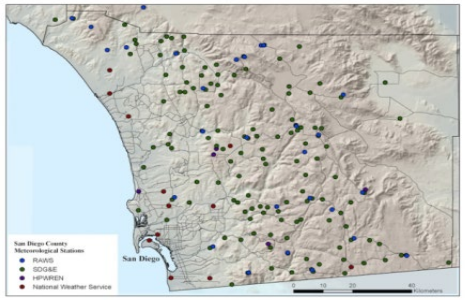
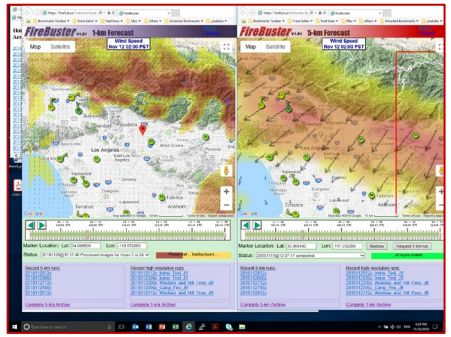


Ground-based real-time weather and camera imagery

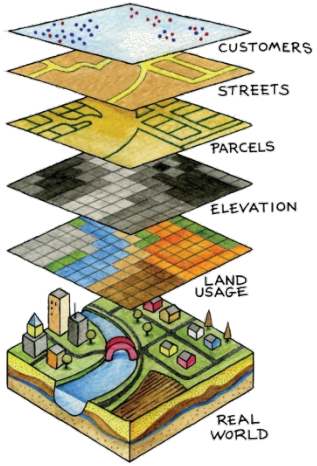
Fire perimeters

Remote sensing and aircraft data

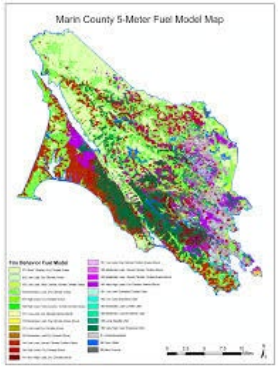
Field data



Weather forecast and modeling



Landscape data



Land cover and fuel

Such diverse data comes with pain points to overcome!

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

Challenges around data, models and culture hinders scalable solutions and collaborative thinking!

- Too much data without value in decision making
- Siloed data storage findability, and accessibility
- Culture toward one size fits all fire and weather modeling
- Lack of standards and transparency
- Undefined process for data ingestion, curation, use and reuse
- Difficulty to access and switch between alternative models
- Poor data quality, governance and availability
- Limited interoperability and feedback between practice and research
- Reliance on often expensive closed box integrated products

How do we go from these challenges to:

- Standardized collaborative data infrastructure?
- Rapid solutions?

Embrace open science and data through a commons approach!

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Actionable Open Fire Science and AI:

Right Model and Right Data
for the Right Decision Support Workflow
at the Right Time
with the Right Communication

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

More questions...

- How can data be standardized to help integration, collaboration, interoperability and reuse?
- How does data become AI-ready so we can accelerate use of AI?
- How we make data useable, timely and interpretable by decision-makers?
- How can new multiple data sources and models be used together or interchangeably?
- How can open things be sustained into the future?
- …

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

Toward a Collaborative Utility Commons

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GENERATE → SERVE → (RE-)USE

- Data and models generated by **utility stakeholders** for a specific purpose

- Data and models served via a **common infrastructure**
  - ❖ Ingestion
  - ❖ Curation
  - ❖ Integration
  - ❖ Findability
  - ❖ Accessibility
  - ❖ Interpretability
  - ❖ AI Readiness

- Data and models used by **community** to create new science and technology solutions

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

INTRODUCING THE

WILDFIRE TECHNOLOGY COMMONS

We believe that avoiding devastating wildfires requires urgent, innovative, and collaborative solutions. The Wildfire Technology Commons is a bold new initiative designed to accelerate technological innovations for wildfire management and mitigation. We are building a community platform around open data, cutting-edge science, AI, and shared knowledge.

https://www.wildfirecommons.org/

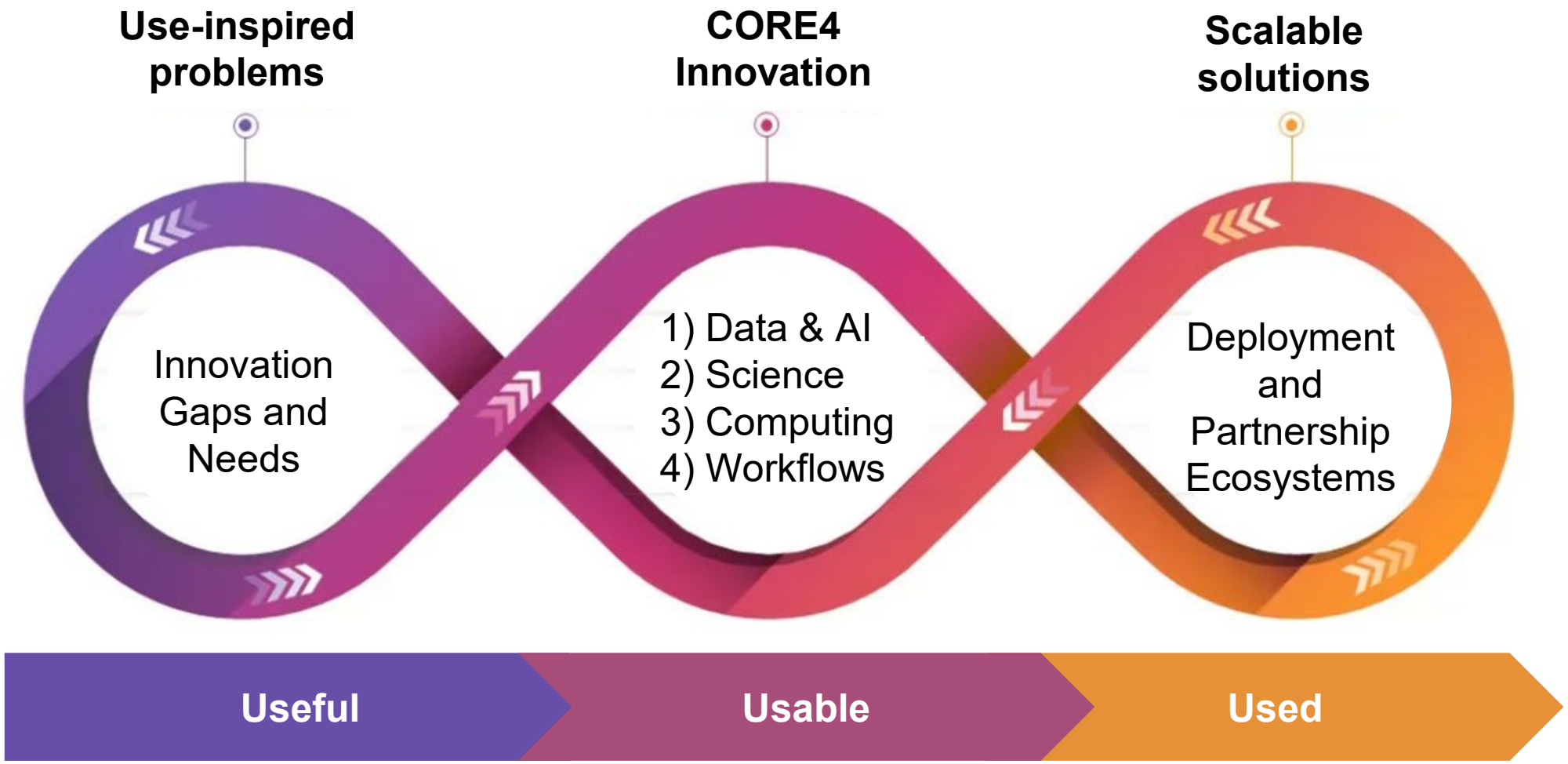
JOIN THE NETWORK

CONTRIBUTE DATA & MODELS

BECOME A PATHFINDER

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

Our Solution Innovation Approach



https://www.core-institute.org

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

Are there risks to open data and models?

Advantages

- Transparency
- Collaboration
- Innovation
- Accountability
- Cost savings

Risks

- Security
- Misinterpretation
- Liabilities
- Economic concerns, e.g., insurance loss

Manageable through cybersecurity, public education, standardization, communication, …

The Benefits Outweigh the Risks — If Proper Controls Are in Place...

Balance openness with responsible data governance!

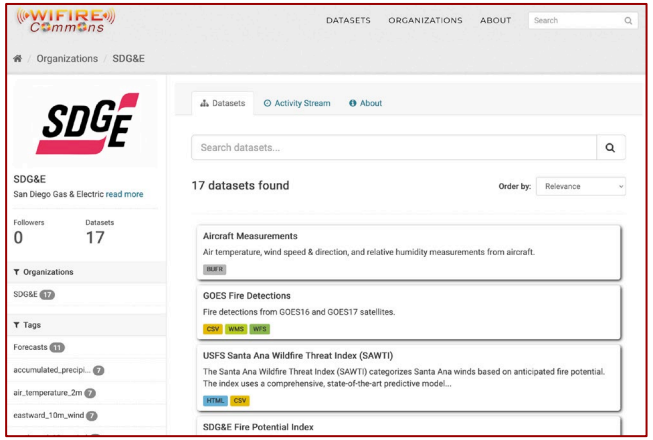
Some examples from our work….

Collaboration with

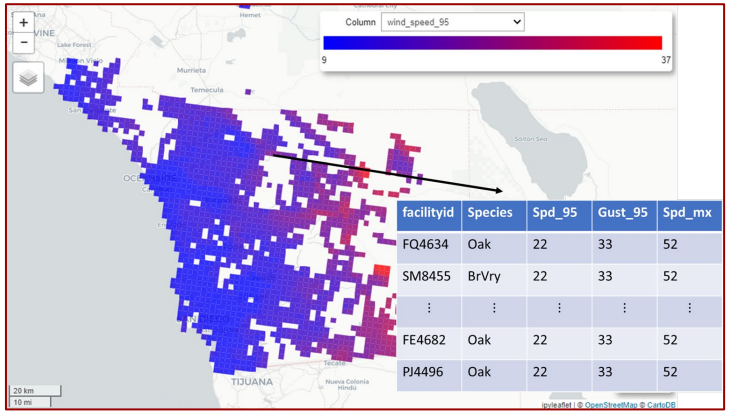
SDGE

UC San Diego

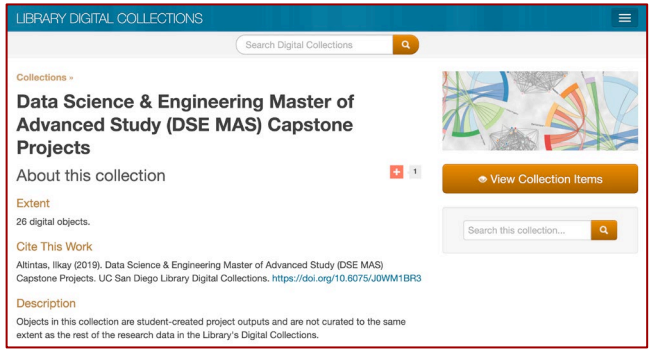
Data Commons



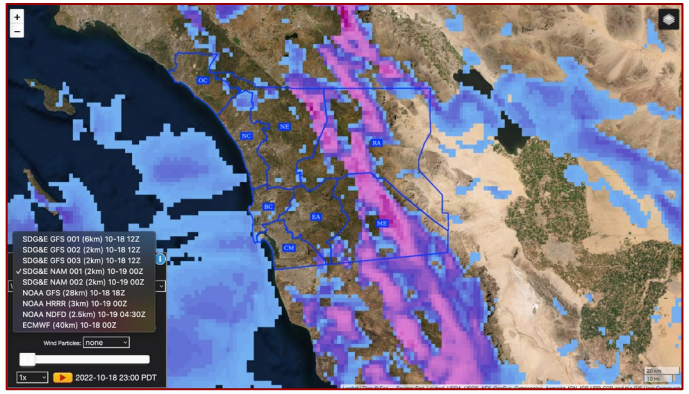
AI Partnerships



facilityid	Species	Spd_95	Gust_95	Spd_mx
FQ4634	Oak	22	33	52
SM8455	BrVry	22	33	52
⋮	⋮	⋮	⋮	⋮
FE4682	Oak	22	33	52
PJ4496	Oak	22	33	52



Visualization



https://wxmap.sdsc.edu/

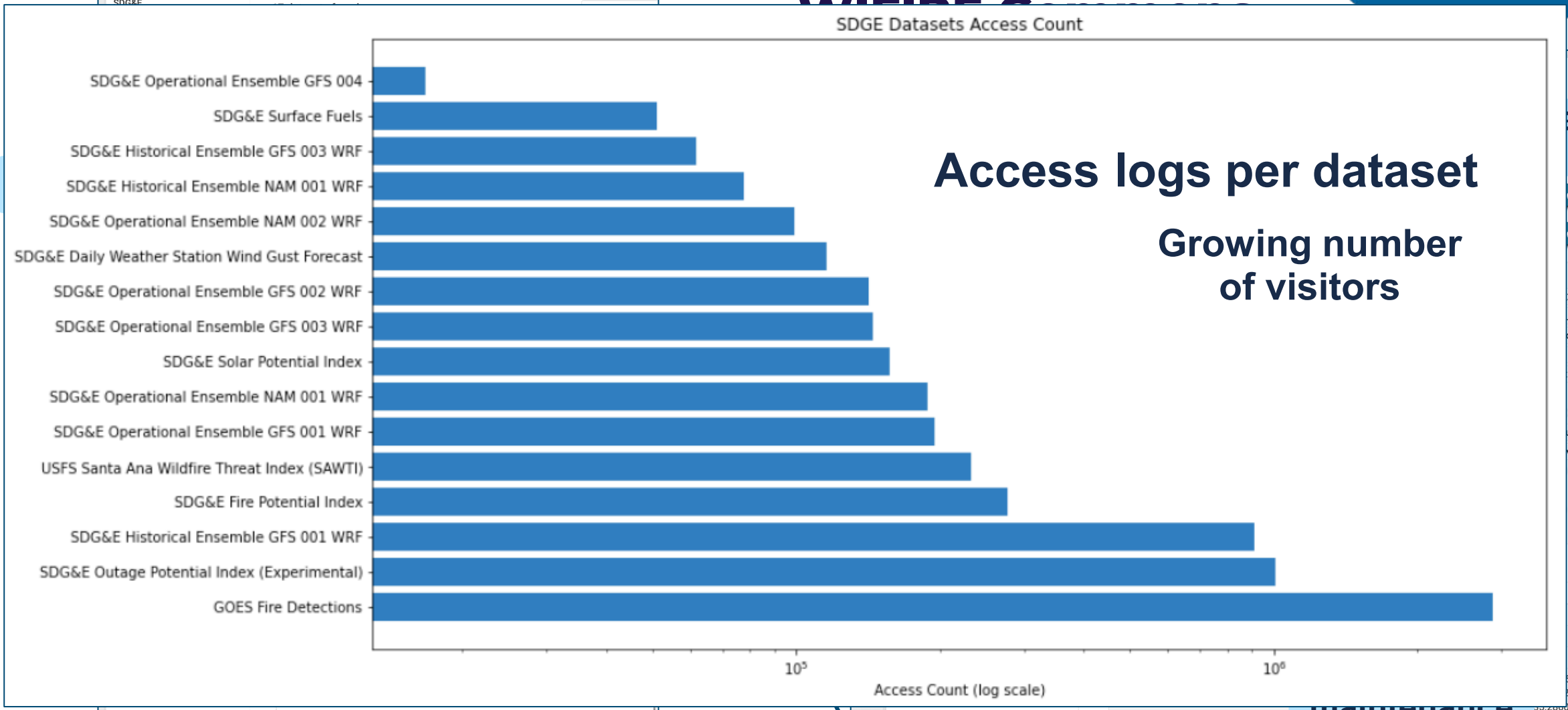
Talent Development

SDGE

data search

SDGE Data in

UC San Diego



Access logs per dataset

Growing number of visitors

maintenance

wifire.ucsd.edu/

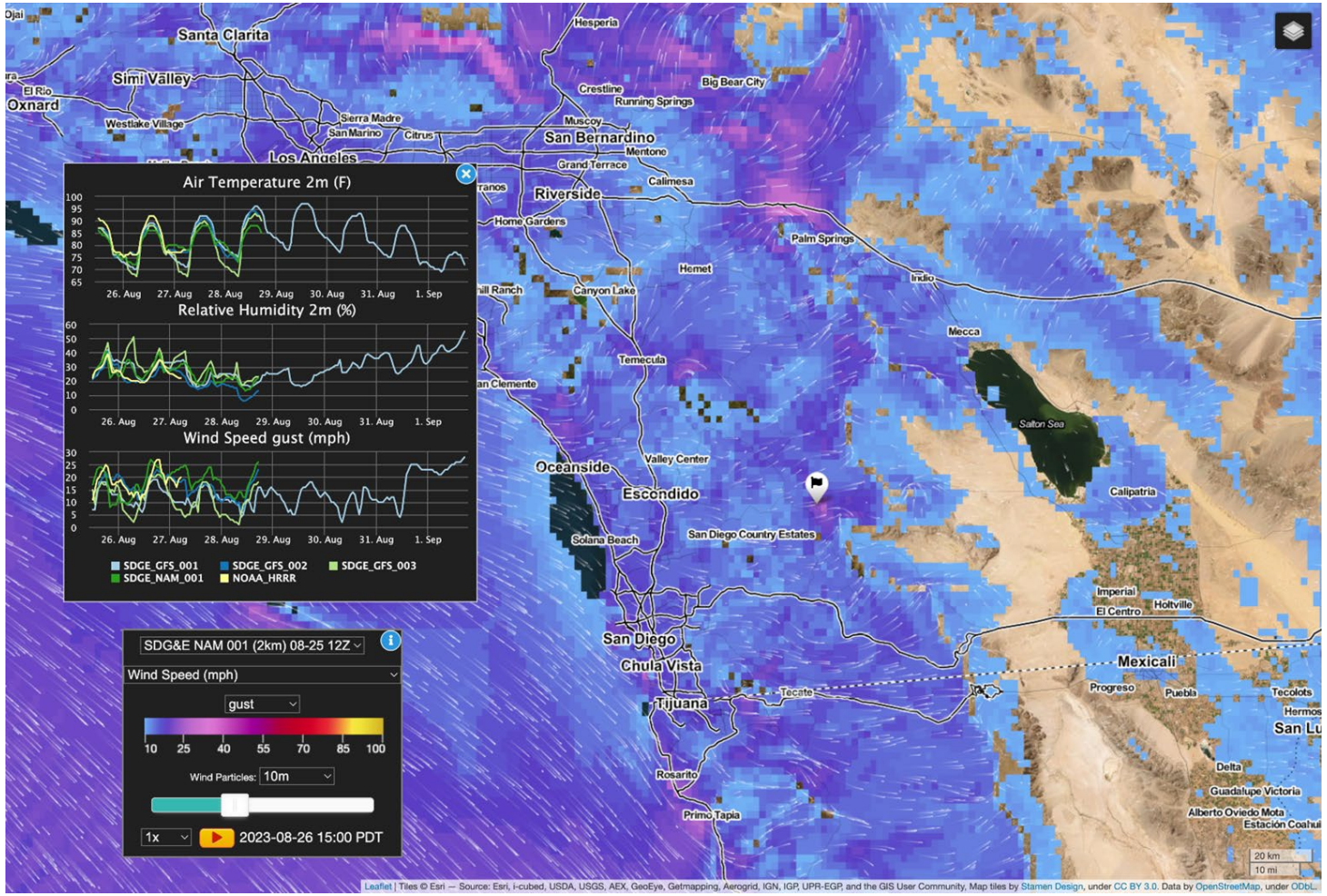
SDSC SAN DIEGO SUPERCOMPUTER CENTER

UC San Diego HALICIOĞLU DATA SCIENCE INSTITUTE

WIFIRE

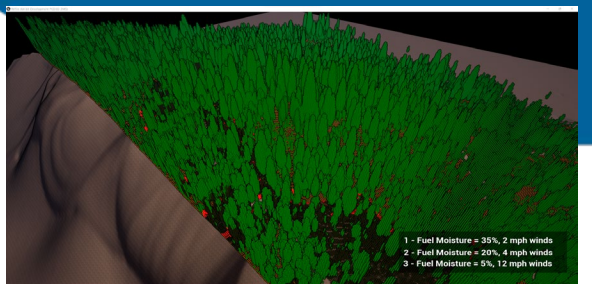
Weather Visualization

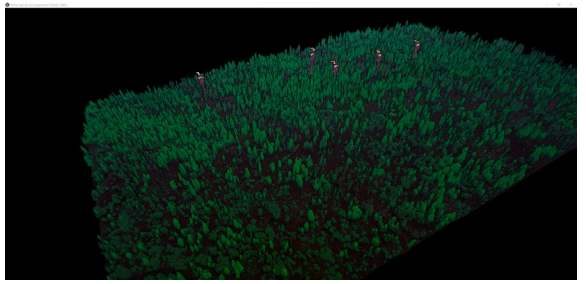
https://wxmap.sdsc.edu/

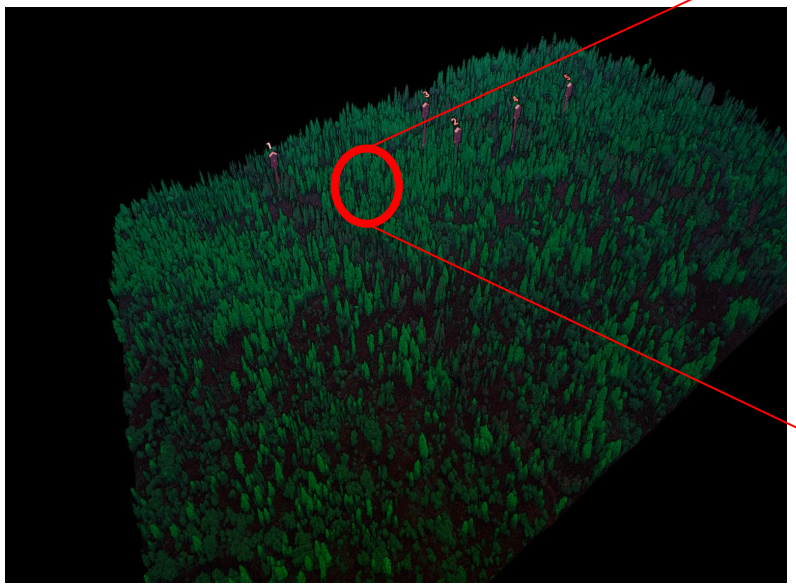


- Five **new weather models**
  - GFS 011-014 (3km), GFS 001 NEW (1.5km)
- **New variables**
  - hot dry windy, heat index, lightning strike density, sea level pressure, smoke (HRRR), CIN (HRRR)
- **New derived variables**
  - CAPEXP1H, Vertical Wind Shear
- **Planned**
  - additional weather models

Immersive Forest
for
Multimodal Communication

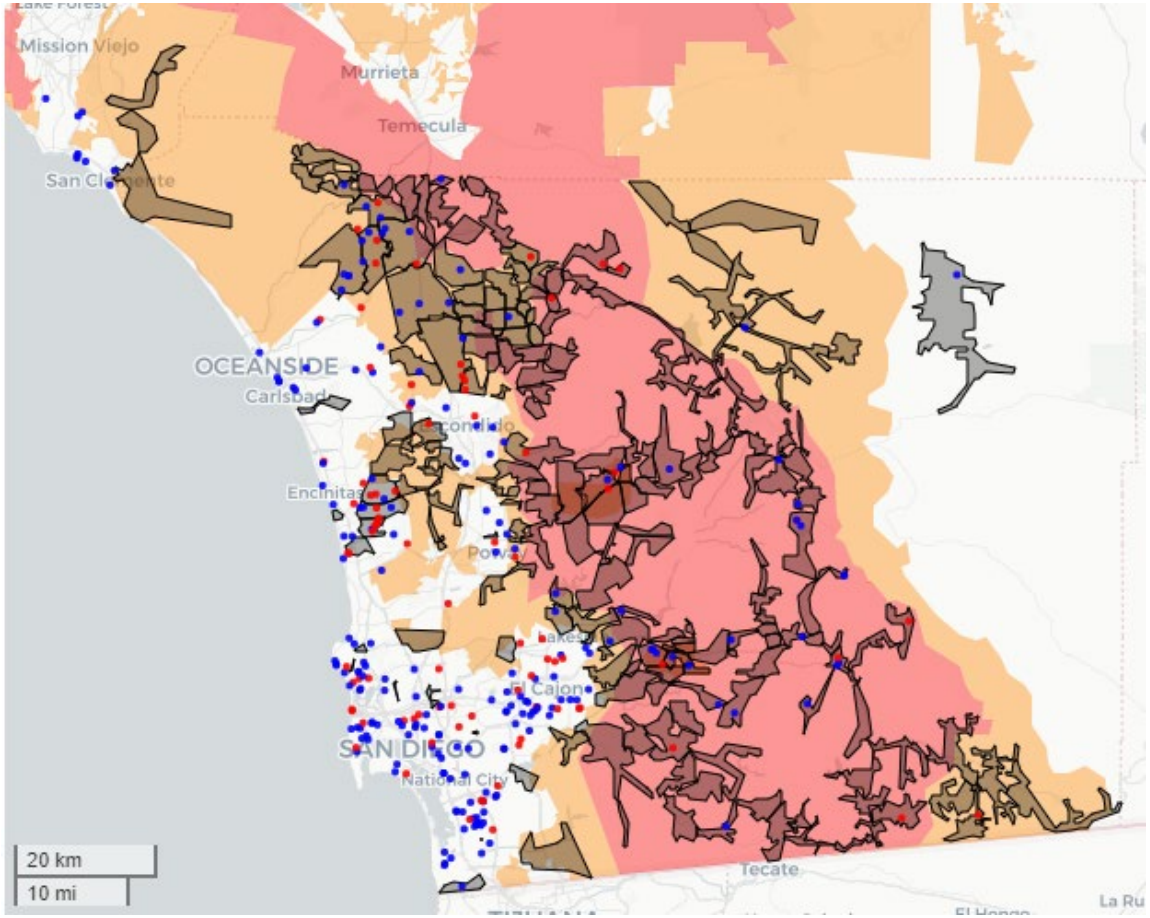






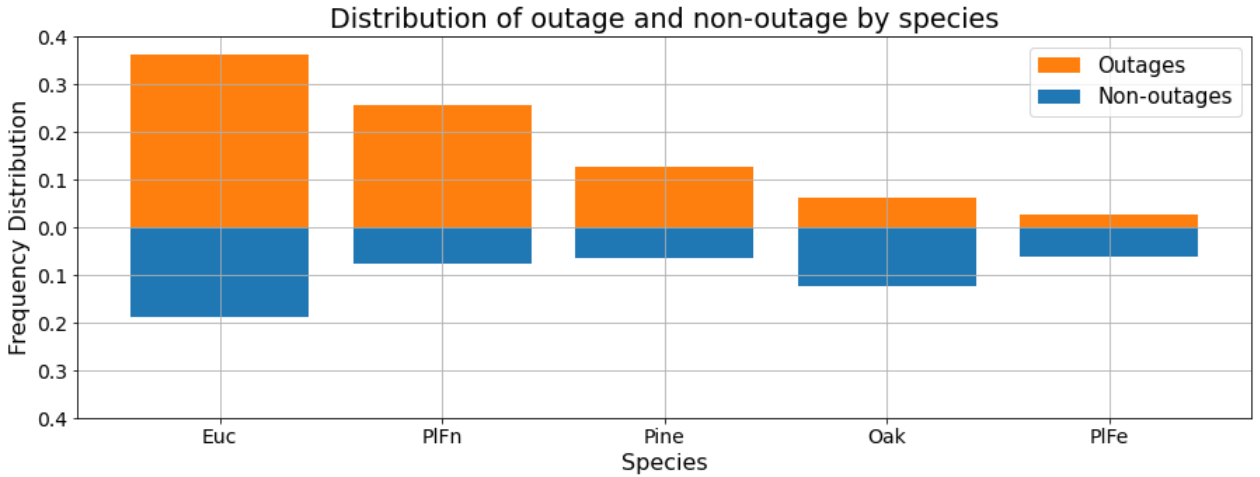
Terrestrial LiDAR contextualized
within Aerial scan

Vegetation Management Data Analysis



FTO: First-Time Outage
NFTO: Non-First-Time Outage

- Cleaned and prepared data to be used for analytical & predictive tasks
- Performed analyses to determine what, when, where, and how vegetation-related outages occur



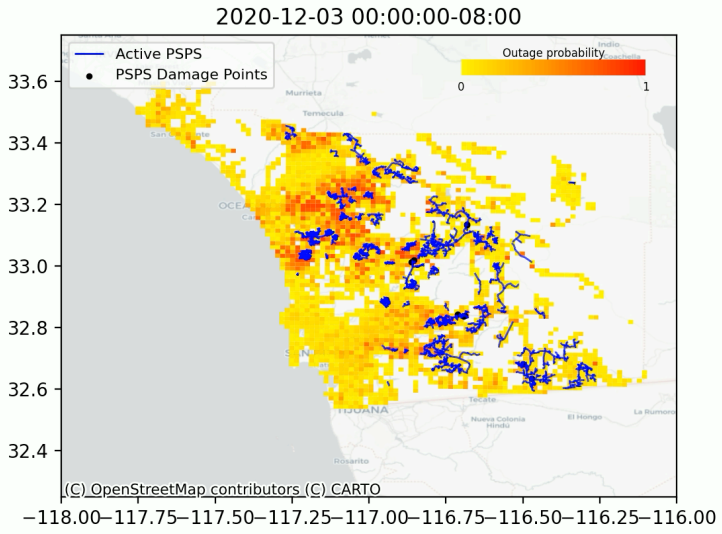
Outage Prediction Model

Veg Features
Weather Features
Asset Features

Model

Model provides vegetation-related outage risk per hour

Example Model Output Visualization

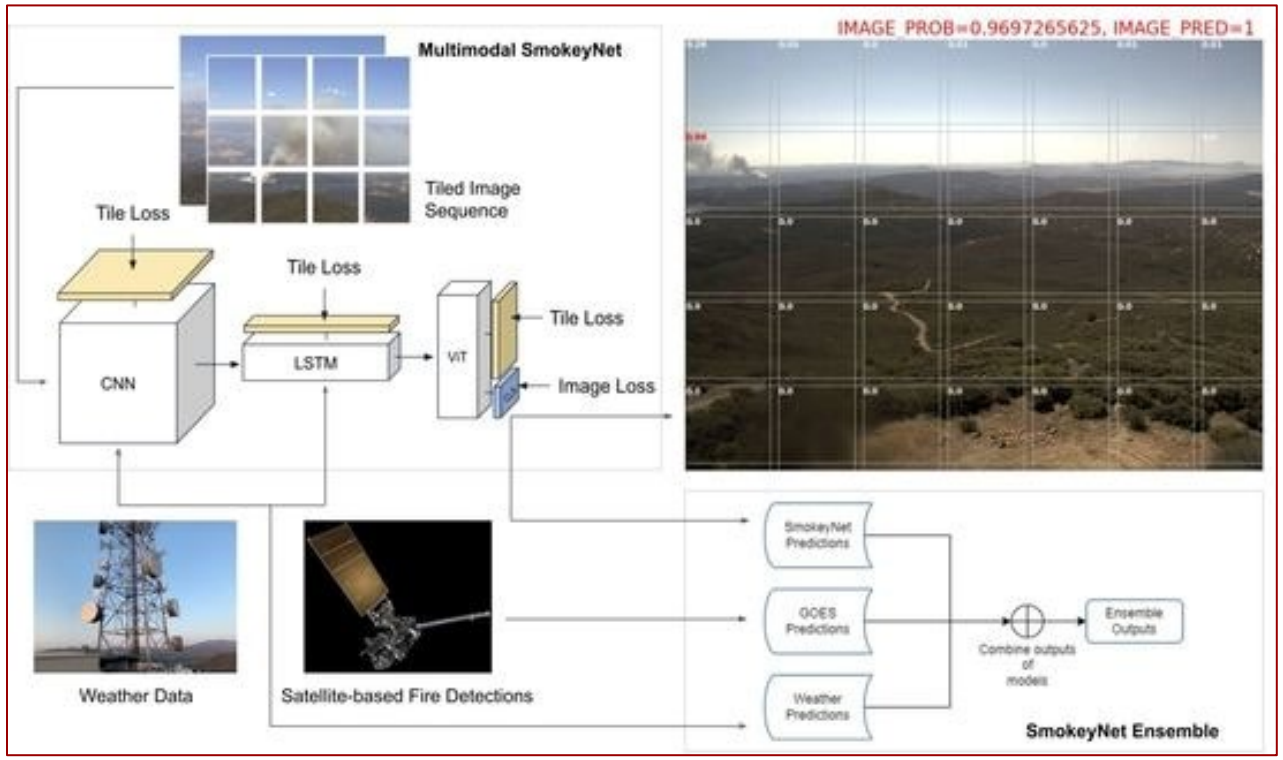


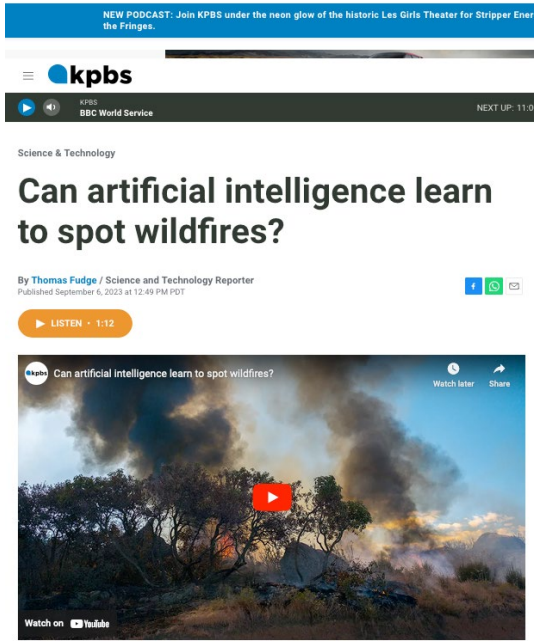
Deep Learning for Smoke Detection

SmokeyNet: Detects wildfire smoke plumes from HPWREN camera images

Multimodal SmokeyNet: Integrates GOES-based fire detections & weather sensor data with camera images for wildfire smoke detection

MDPI Remote Sensing journal: https://www.mdpi.com/2072-4292/15/11/2790





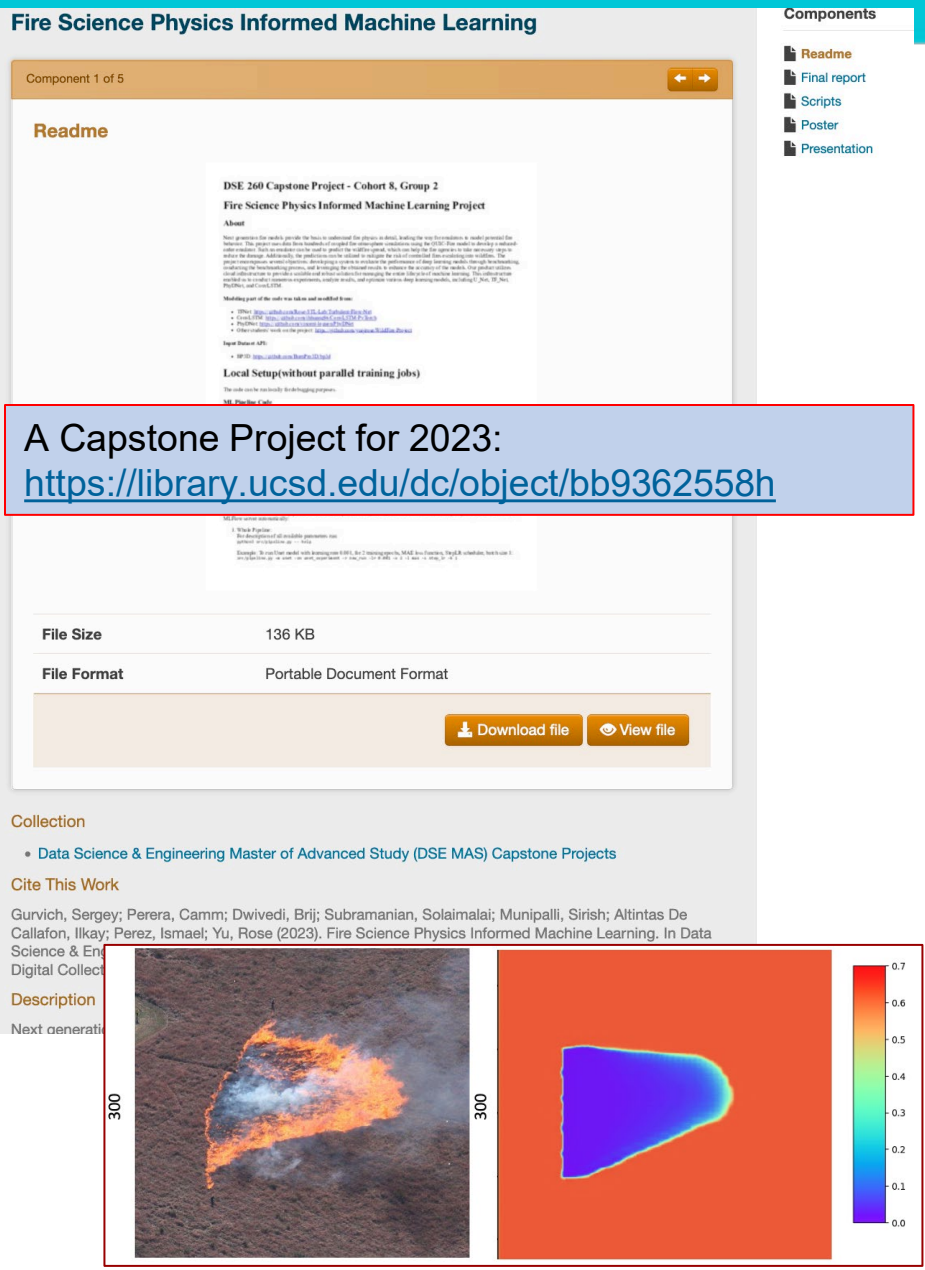
KPBS: https://www.kpbs.org/news/science-technology/2023/09/06/can-artificial-intelligence-learn-to-spot-wildfires

A Capstone Project for 2022:
https://library.ucsd.edu/dc/object/bb8815458t

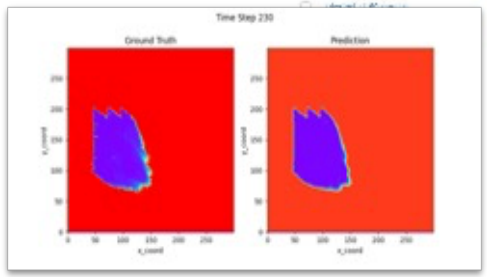
Physics-Guided Machine Learning for Fire Spread Prediction

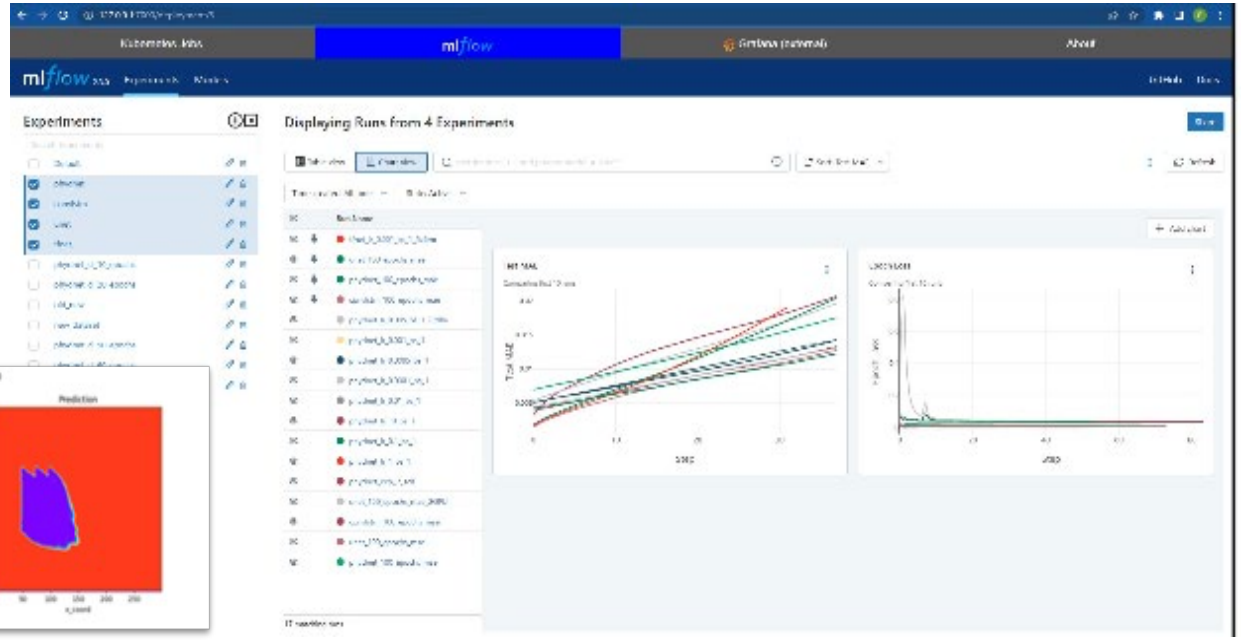
UC San Diego

- Deep learning models to predict how fuel density changes over time
- Incorporate physics constraints: Apply penalty term if fuel density increases in model's prediction
- Platform for experiment tracking & analysis



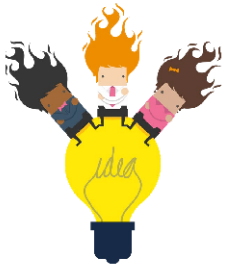
A Capstone Project for 2023:
https://library.ucsd.edu/dc/object/bb9362558h





Engaging Future Leaders

UC San Diego



Mindshifts on Megafires

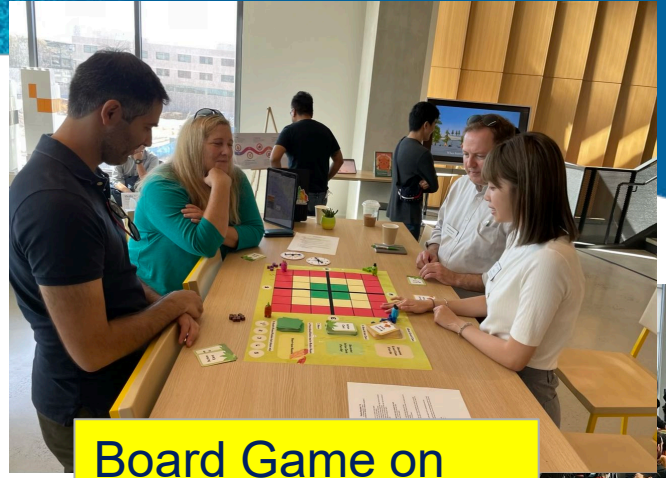
Design Challenge Prototype Expo

Register **HERE**

Join us to experience seven virtual and physical installations – from immersive forests to board games – designed to increase public understanding of wildfire mitigation.

toddgloria

Virtual Fire Walk



Board Game on Fire Sessions with K-12 Students

Mission Burn Boss Computer Game

An Evening with Bill Nye

toddgloria I'll admit to being more than a little starstruck eet @billnye at @data_science_alliance launch...

Who is a Good Fire? Animated Short

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

DATA CHALLENGE

FIRE-READY FORESTS

Next Generation Science for Wildfire Resilience

Hosted by the Prowess Center on the National Data Platform in partnership with the Wildfire Commons
More information at https://prowesscenter.org/

NATIONAL DATA PLATFORM

WILDFIRE SCIENCE & TECHNOLOGY COMMONS

PROWESS

UC San Diego

Los Alamos NATIONAL LABORATORY

Couple of closing points…

Data and tech is a means to an end – let's not forget our objectives

- *The potential for new technology built on data and science is unparalleled, as are the challenges in risk management.*

Data and tech needs to be harnessed

- *We need to start with insights learned through operational experience within proven workflows for decision making.*

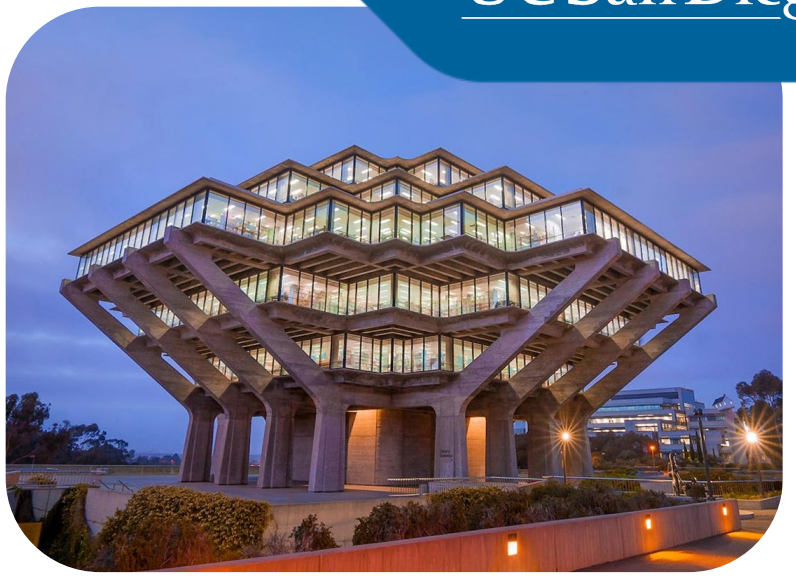
Let's not forget about science basis for tech

- *Open science and open data needs to be supported.*

New business models for building new solutions together

- *Slow but steady cultural shift is happening.*

İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)



İlkay ALTINTAŞ, Ph.D. (ialtintas@ucsd.edu)

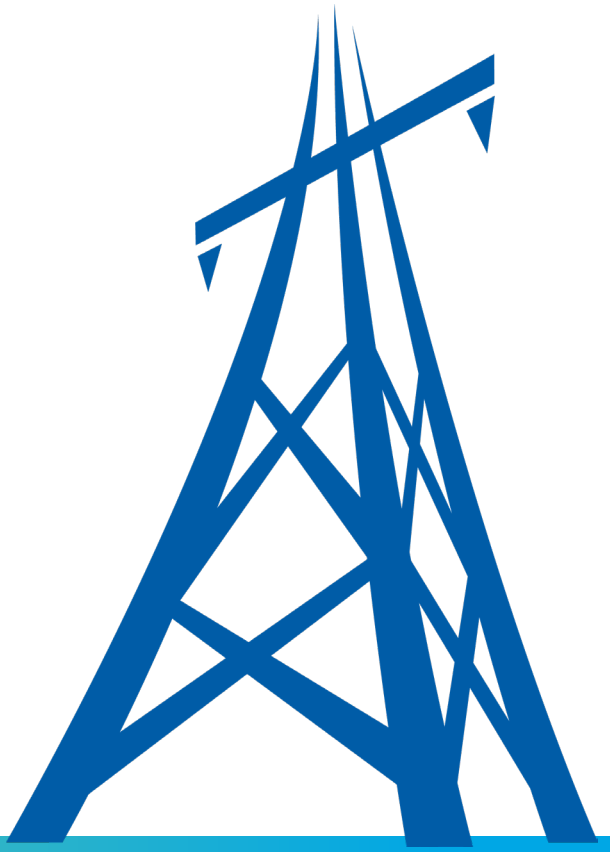
Data Analytics Division (DAD)

Collaborative Data Solutions

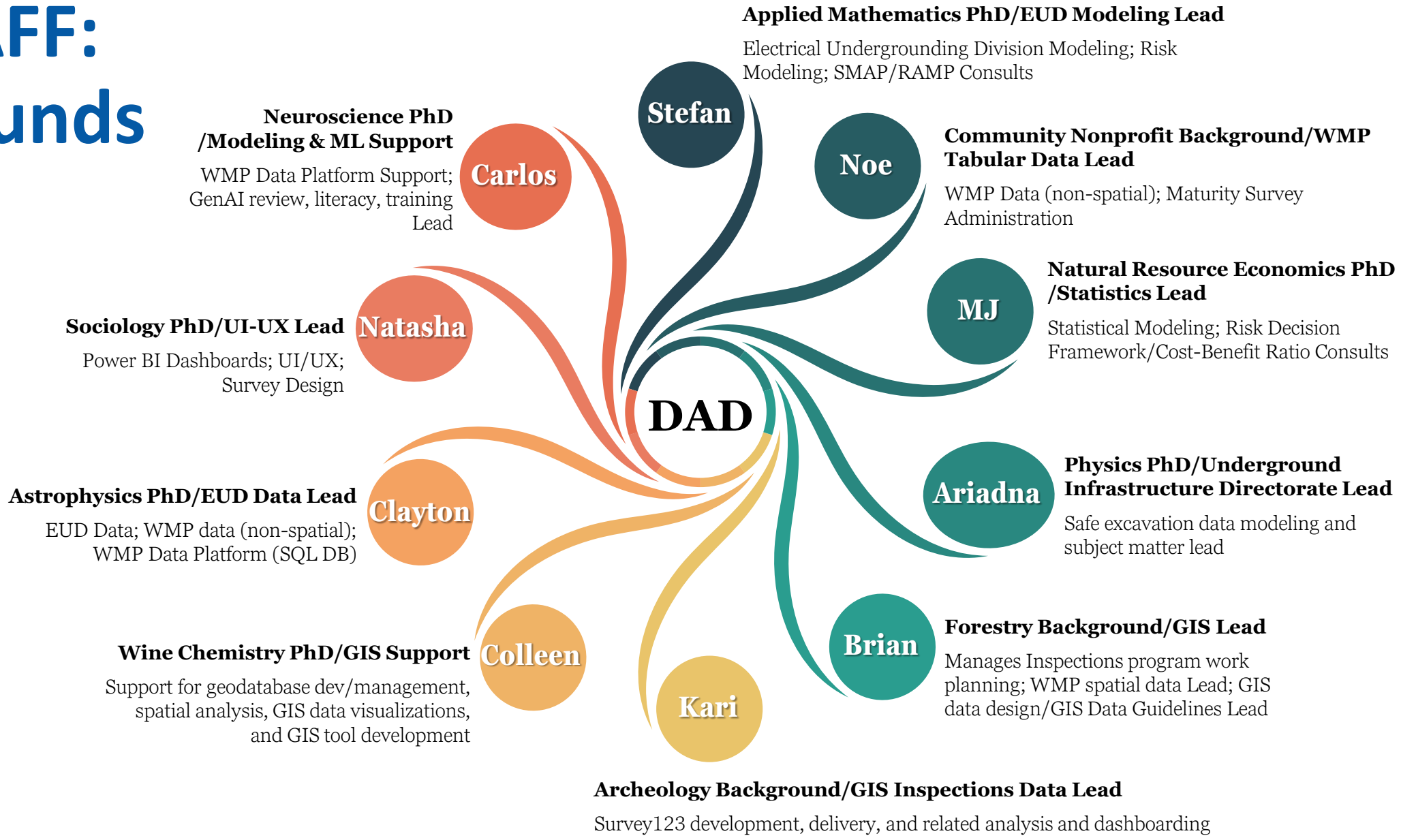

WHO IS
DAD?

DATA ANALYTICS DIVISION (DAD)

- Started with foundational WMP GIS data collection and products
- Evolved to tackle complex policy questions with data science:
  - Grew from 6 to 12 positions over 2024
  - Actively building out enterprise data resources in collaboration with IT



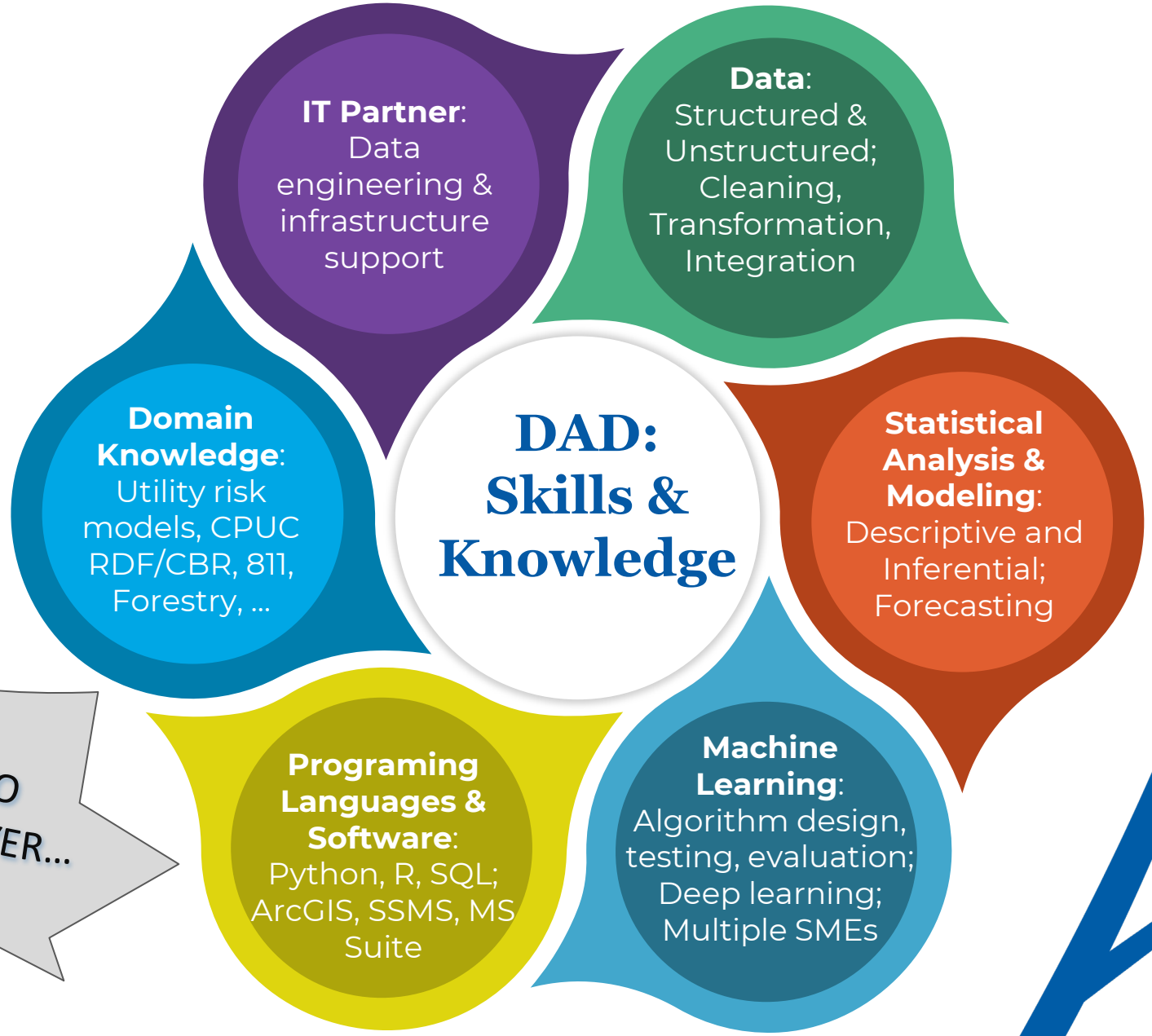
DAD STAFF: Backgrounds & Roles



DATA ANALYTICS & DATA SCIENCE

- Data Oversight
- Trends
- Forecasts
- Predictions
- Analyses
- Normalizations
- Surveys
- Visualizations
- Dashboards
- Maps
- … and more!

TO DELIVER…



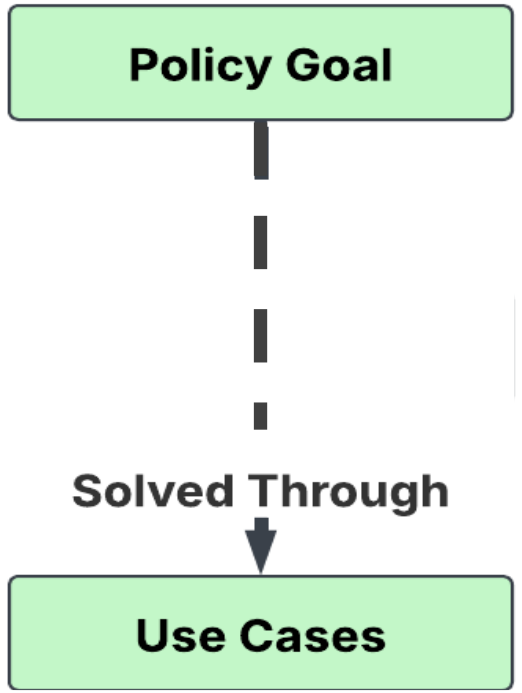
FROM TRADITIONAL TO DATA FORWARD

1. **Policy Goal(s)**
   - As defined by appropriate authority and interpreted by department and program leadership
2. **Propose Research Question(s)**
   - Formalized questions translated to mathematically tractable language

Define Use Cases

- Public Policy: How an agency actively implements an adopted policy
- Software Dev: How a user interacts with a system to achieve their goal
- Data Forward Public Policy: How an agency interacts with data and information to achieve a policy goal.

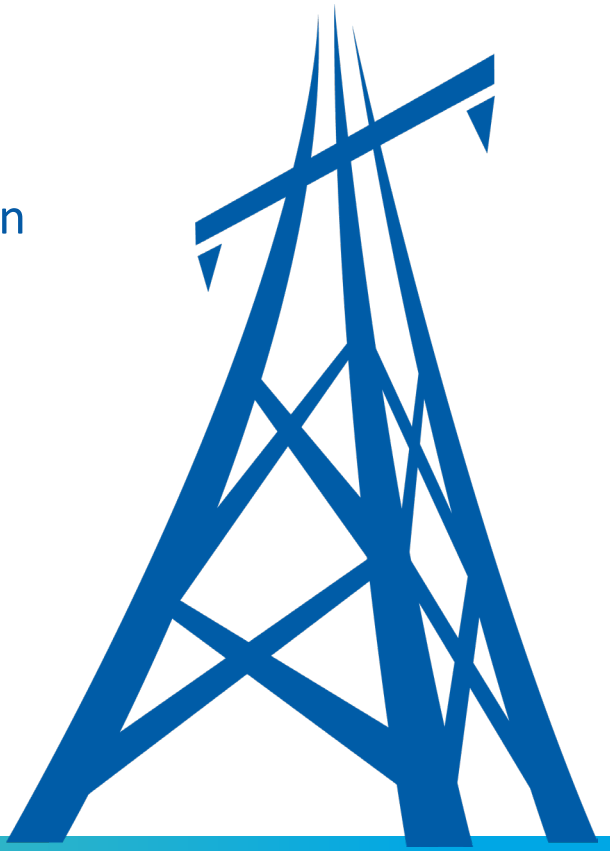
4. **Data and Product Development: "Capabilities"**
   - Technical enablement of the use cases
   - Examples: data collection protocols, databases, analysis tools, informatics architectures, and visualizations, all of which are used to fulfill the use cases and meet the policy goals



BALANCED APPROACH

Use cases are where data and policy perspectives must coalesce.

- A purely **data-driven** effort could result in a process which is technically feasible but doesn't answer the research question in a way which results in actionable policies.
- A purely **policy-driven** effort could result in a process which is ill defined, statistically incorrect or technically infeasible.



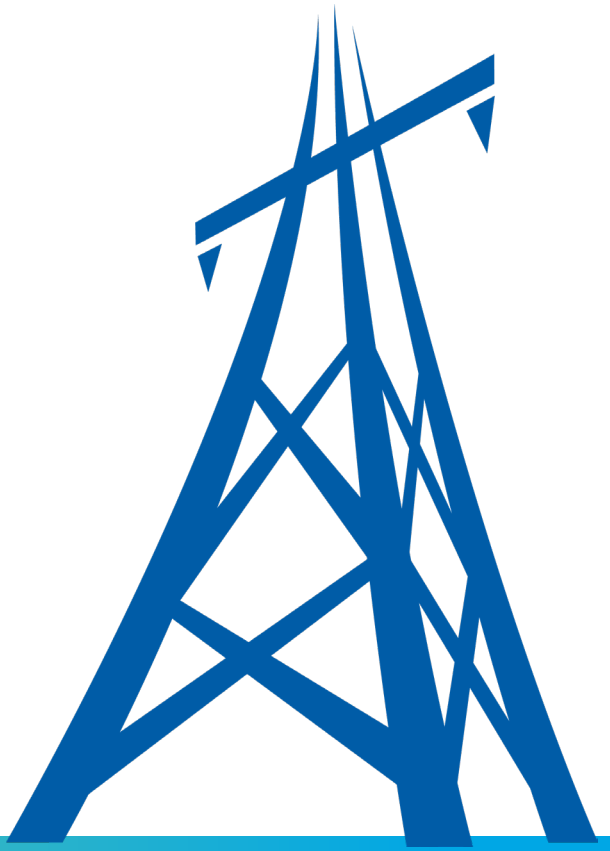
BALANCED APPROACH

1. Transparency

- Understandable by the public
- Analyzable by stakeholders
- Tractable for Energy Safety's program needs
- In compliance with all applicable requirements

2. Robustness

- Base-level metrics should reflect real-world observations/measurables
- Advanced metrics should be supported by multiple analyses—*model agnosticism*
- **No stand-alone metrics**



CASE STUDY:
SB 884 IMPLEMENTATION

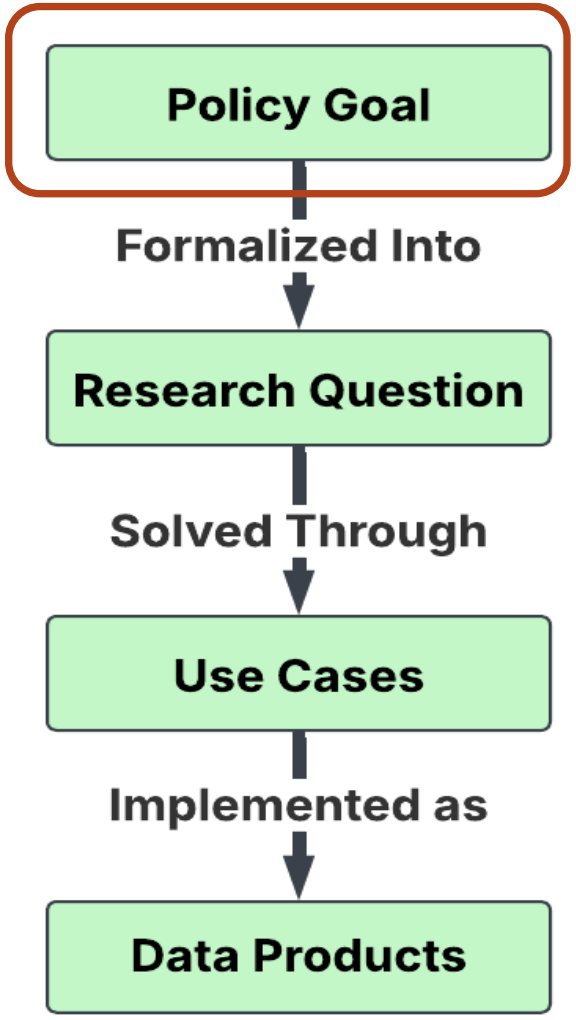
BILL TEXT—POLICY GOALS

SB 884[1]: Expedited Electrical Undergrounding

(d)(2) The office may only approve the plan if **the large electrical corporation has shown that the plan will substantially increase electrical reliability …and substantially reduce the risk of wildfire.**

(c)(2) A **comparison of undergrounding versus aboveground hardening** of electrical infrastructure and wildfire mitigation for achieving comparable risk reduction, or any other alternative mitigation strategy

(d)(2) **Before approving the plan, the office may require the large electrical corporation to modify the plan.**



[1]SB 884 (McGuire), Chapter 819, Statues of 2022

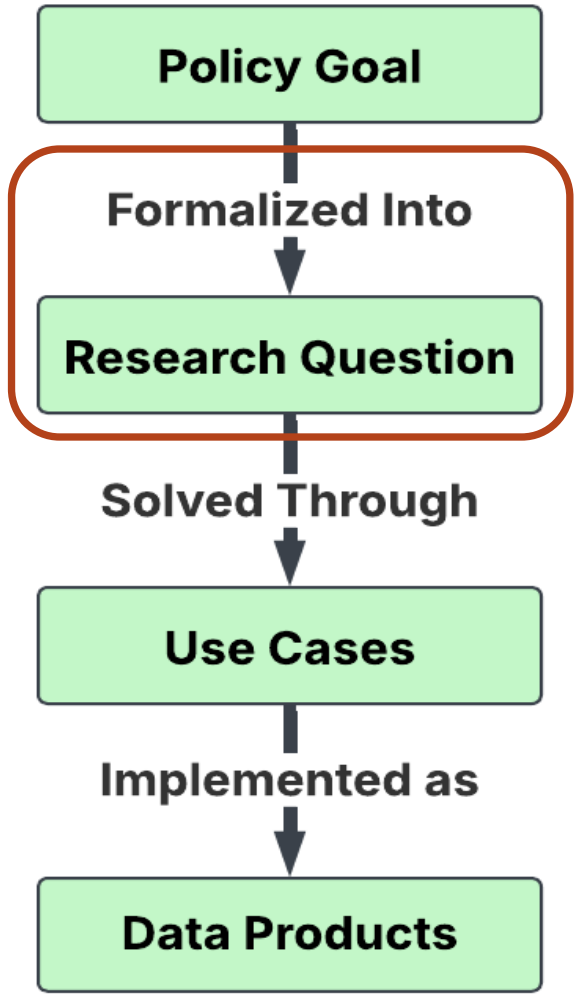
DEVELOPING RESEARCH QUESTIONS

Policy Questions:

- What is a significant reduction of risk?
- How to compare un-alike mitigation strategies?
- How to ensure high quality plans?

Challenges:

- Plans cover 10 years, and must allow for flexibility in project selection, risk model updates, HFTDs, and environmental considerations.
- Processes approved in original plan cannot change during compliance period.
- Most existing risk numbers are repotted as financialized, risk attitude-adjusted metrics defined by the CPUC
- The large expenses and lengthy implementation timeline of undergrounding necessitate long-term analysis.
- **EC risk modeling resources far outnumber Energy Safety EUD/DAD resources**



RESEARCH QUESTIONS

How to numerically quantify “significant”?

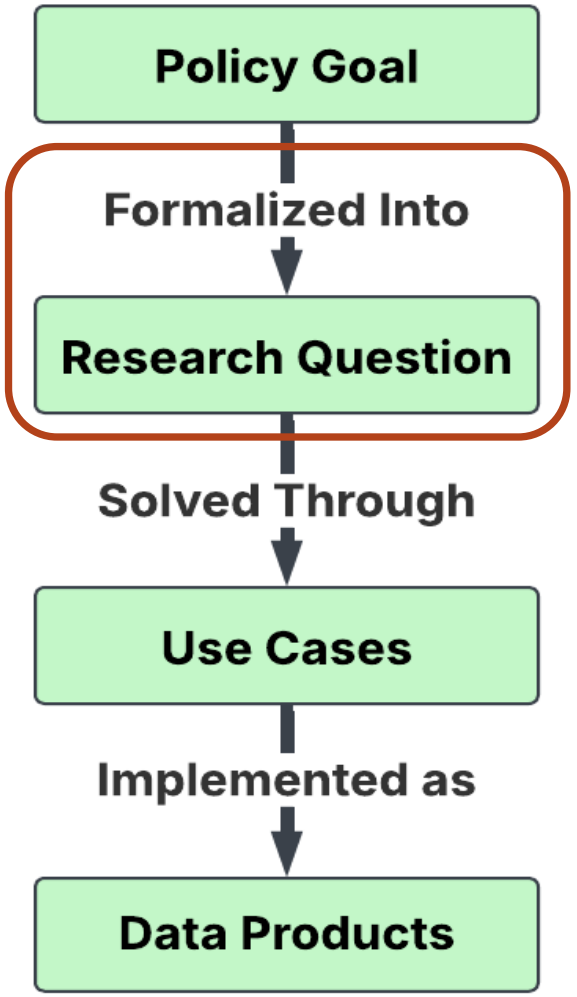
- Ability to contextualize metrics and compare them to real-world observations

Given an LEC Undergrounding Plan, how can we predict outcomes?

- Best/Worst/Average-Cases based on EC risk modeling

How can we measure plan quality and direct improvements?

- Use EC provided data and modeling to stress-test modeling methodology, identify shortcomings and develop actionable recommendations

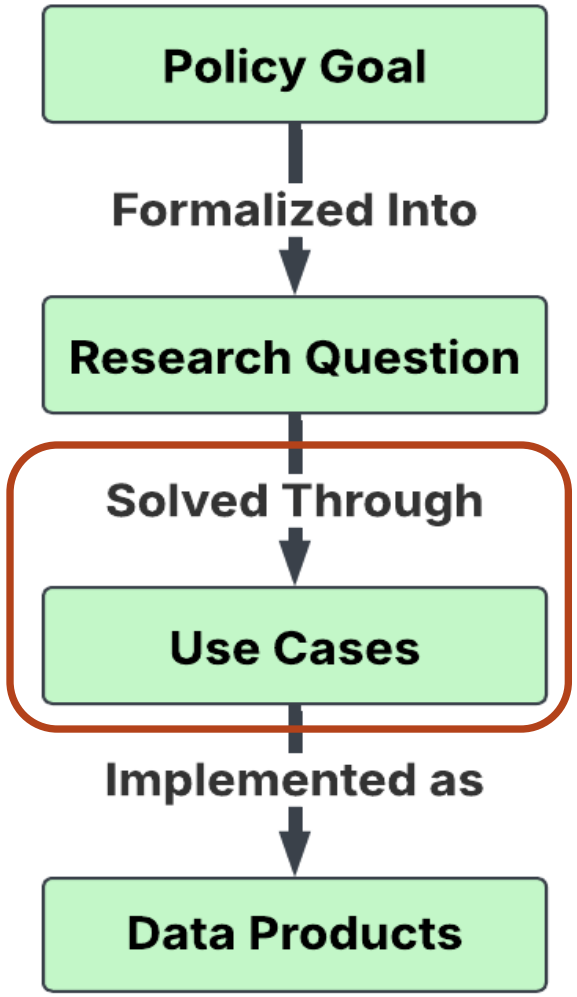


DEVELOPING USE CASES

How to numerically quantify “significant”?

- Ability to contextualize metrics and compare them to real-world observations

Technical Considerations	**Policy** Considerations
• What are previously existing data collections that measure the real world that we can leverage? • What are the spatial/temporal resolutions of these metrics? • What are the appropriate formulas to measure the difference between models and observations?	• What are the real-world factors we care about? • How reliable are these measurements of the real world? • What if there are conflicting measurements? • How big of a difference between models and real-world phenomena is acceptable?



FULFILLING USE CASES

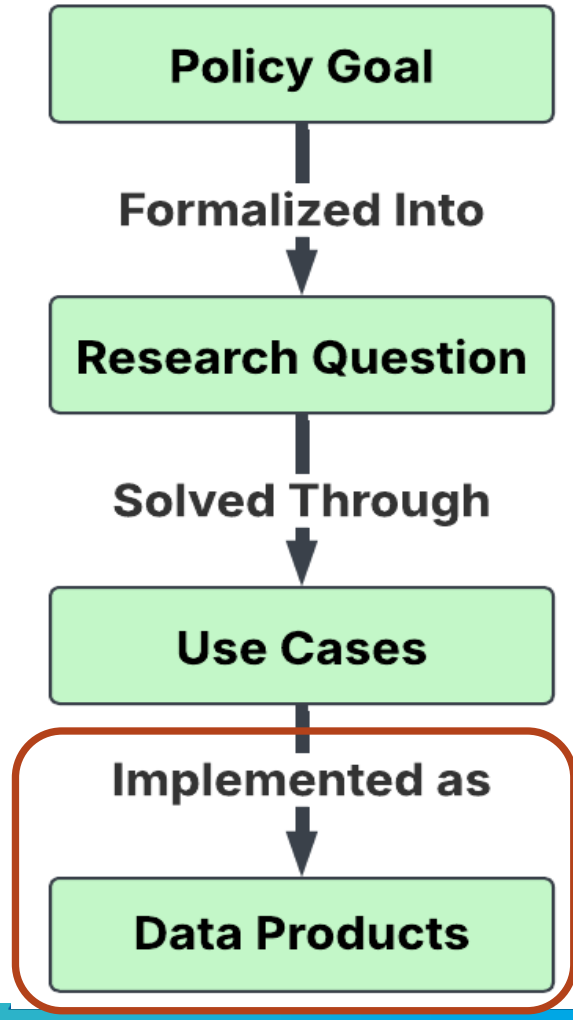
An LEC creates its own undergrounding plan (as opposed to Energy Safety creating it).

- → The *LEC* must demonstrate the identified capabilities.
  In this way, the LEC's plan is both technically robust and bounded by public policy.

Energy Safety defines 7 **Core Capabilities** which enable an LEC (and ultimately Energy Safety) to fulfill the SB 884 implementation use cases.

Core Capabilities (simplified):

- **Project-Level Risk Analysis**
- **Aggregate Risk Analysis**
- **Wildfire and Outage Programs Separate and Collective Risks**
- **Accumulation of Risk**
- **Modeling Projects with Multiple Mitigations and Subprojects**
- **Establishing Baselines and Historical Calibrations**
- **Comparisons with Alternative Mitigations**



AGENCY PARTNERS - A SPECIAL CASE

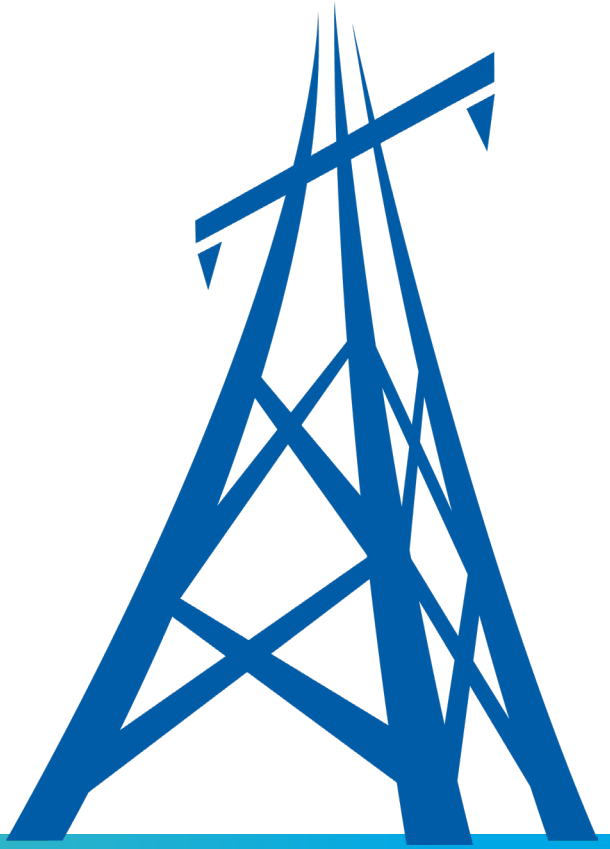
Energy Safety's use cases can be solved using ***Probabilistic Risk Analysis (PRA)***

- Family of techniques developed to evaluate risk associated with complex systems
- Developed originally by Nuclear Regulatory Commission (and Bell Labs), but now used by NTSB, NASA, EPA and more
- Allows for **Fault-Tree Analysis** (deductive, rare-event-driven) and **Failure Modes and Effects Analysis** (inductive, reliability-driven) to be integrated into single risk assessment framework

The CPUC mandates a **Risk-Based Decision-Making Framework (RDF)**[2] which is downstream from PRA

- Includes policy preferences such as risk attitude, risk tolerance and financial considerations outside the scope of Energy Safety's SB-884 legislative mandate

[2]R. 20-07-013



Solution: Framework Approach

FRAMEWORK APPROACH

Key:
Informational
PRA-Based
Decision Science

Screen 1: Is the project eligible?
- Location
- Risk reduction potential

Screen 2: Is the project feasible?
- Coarse-grained financial considerations (CPUC Cost-Benefit Analysis)

Screen 3: Will the project reduce risk?
- Project-Based Risk Analysis

Screen 4: Does the project fit into the plan?
- Prioritization
- Updated finances with scoped project
- Workforce development

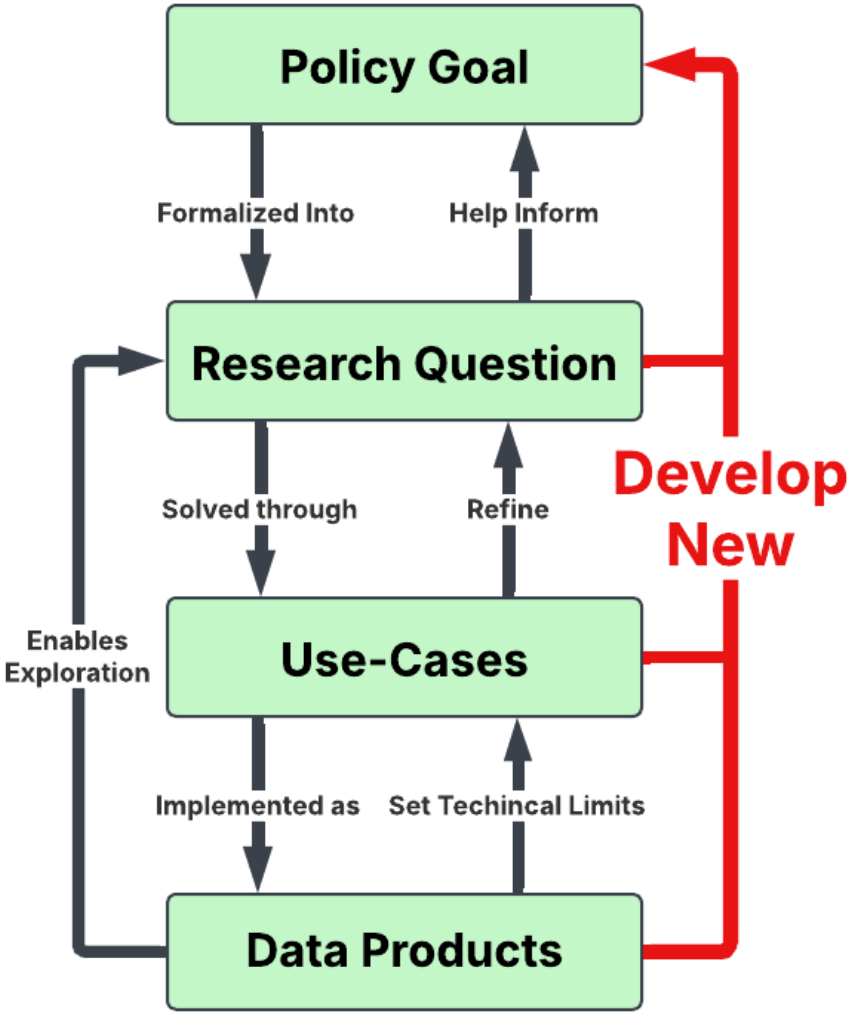
Program Outline:

- Clear policy goals translated into research questions
- Research questions workshopped into Use Cases
- Use Cases govern development of explicit process(es)
- Solution implementation with knowledge feedback loop

COLLABORATIVE DEVELOPMENT

Since DAD has been embedded since the inception of EUD, we have been able to develop data requirements in concert with policy decisions.

- Refinement of policy goals based on data/modeling
- With lead time, DAD can prototype databases, analysis tools, and dashboards with program staff
- DAD can deliver mature products before any plan is submitted, supporting program readiness and freeing up resources during time-limited critical review periods
- **Iteration and collaboration with program teams are key to success!**
- **More projects in development, stay tuned!**



QUESTIONS?

DATA DRIVEN
FORWARD-THINKING
INNOVATIVE
SAFETY FOCUSED

www.energysafety.ca.gov

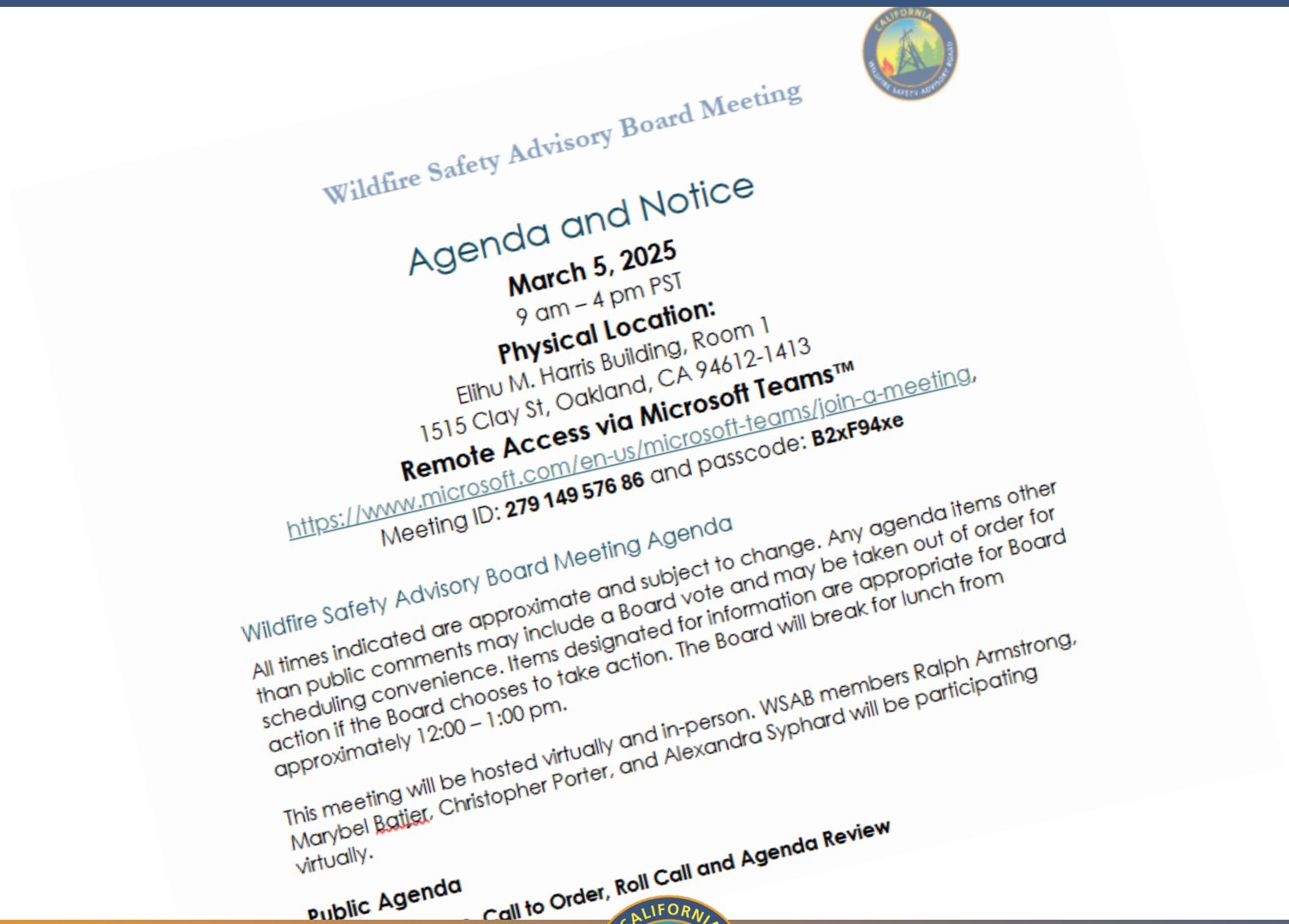
OFFICE OF ENERGY INFRASTRUCTURE SAFETY
A California Natural Resources Agency

715 P Street, 20th Floor
Sacramento, CA 95814
916.902.6000

10 – Meeting Minutes

- **December 5, 2024**

11 – Agenda Items for Future Meetings



Wildfire Safety Advisory Board Meeting

Agenda and Notice

March 5, 2025
9 am – 4 pm PST
Physical Location:
Elihu M. Harris Building, Room 1
1515 Clay St, Oakland, CA 94612-1413
Remote Access via Microsoft Teams™
https://www.microsoft.com/en-us/microsoft-teams/join-a-meeting,
Meeting ID: **279 149 576 86** and passcode: **B2xF94xe**

Wildfire Safety Advisory Board Meeting Agenda

All times indicated are approximate and subject to change. Any agenda items other than public comments may include a Board vote and may be taken out of order for scheduling convenience. Items designated for information are appropriate for Board action if the Board chooses to take action. The Board will break for lunch from approximately 12:00 – 1:00 pm.

This meeting will be hosted virtually and in-person. WSAB members Ralph Armstrong, Marybel Batjer, Christopher Porter, and Alexandra Syphard will be participating virtually.

Public Agenda

Call to Order, Roll Call and Agenda Review

12 - Public Comments for Matters Not on Agenda

Please begin your comments by stating your name and organization (if applicable).

a. In the room
b. On Teams or the phone
c. Via email

13 - Adjournment

- **For more information:**
  - **Website: https://energysafety.ca.gov/what-we-do/wildfire-safety-advisory-board/**
  - **Email: WSAB@energysafety.ca.gov**

Timer