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The Burn Rate: How Wildfire Impacts Energy Affordability Part Two

Jess B. Kincaid, Dan Boff, Devyn Powell,
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June 2026

U.S. DEPARTMENT of ENERGY BATTELLE
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WILDFIRE RISK & RESILIENCE
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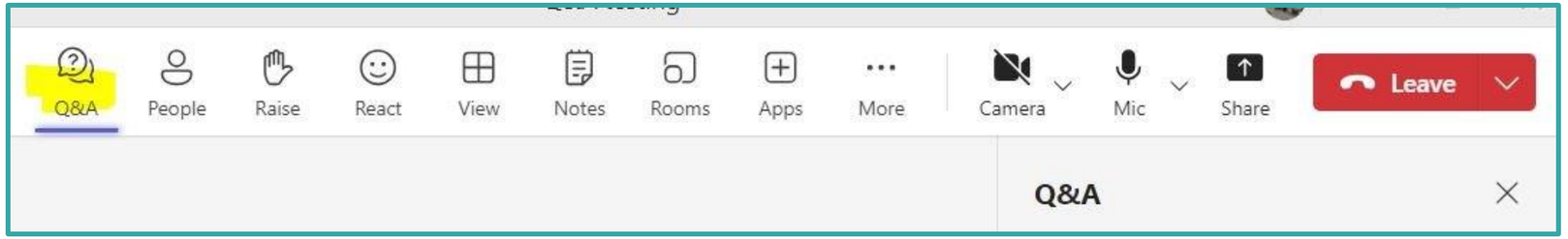
Session Guidelines

- This session will be recorded.
- All participants will remain muted during the presentation.
- Please share your questions using the Q&A tab or by emailing us at wildfire@pnnl.gov.
- Presenters will answer in the Q&A system or reserve questions for discussion at the end of the webinar.

Learn More About How To Use Microsoft Teams Q&A



This is the second in a three-part series

PART ONE: FRAME THE PROBLEM

Thursday, June 4
11:00 am–12:00 pm PT

PNNL will provide an overview of direct and indirect utility costs from wildfire, their scale, and how the costs are showing up in utility rates.

PART TWO: EXPLORE SOLUTIONS

Thursday, June 11
11:00 am–12:00 pm PT

PNNL will present an analysis of potential cost reduction strategies and provide an overview of the complexity of charting a path to affordability.

PART THREE: INDUSTRY THOUGHT LEADERS

Thursday, June 18
11:00 am–12:30 pm PT

PNNL will convene industry thought leaders in a discussion of the impacts of wildfire on utility business models and opportunities to increase energy affordability while mitigating risk.

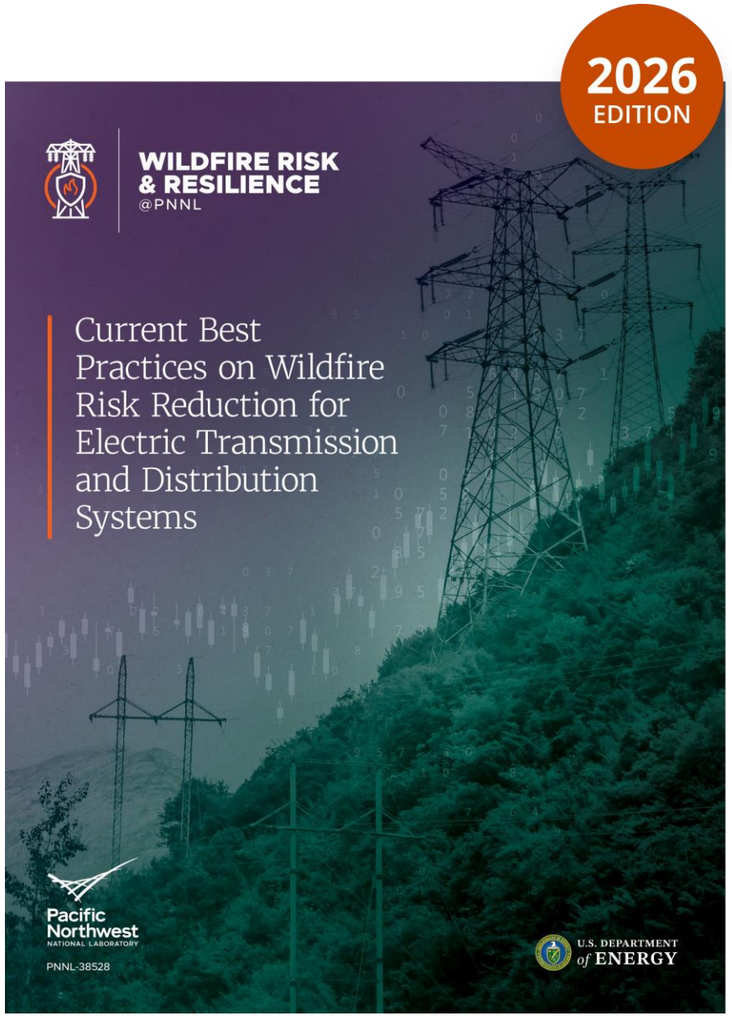
The recordings from Parts One and Two, and the associated analysis will be available at:

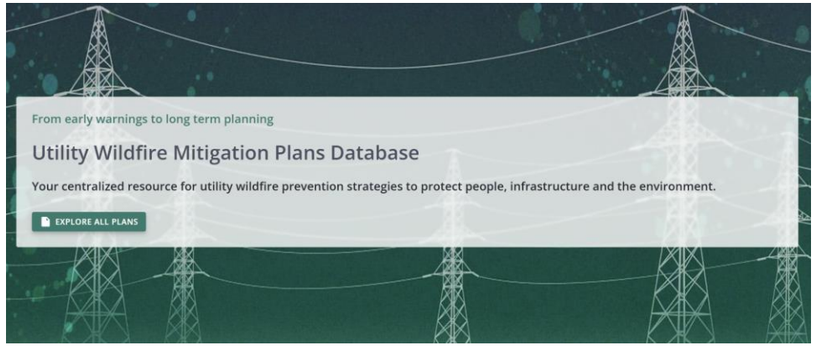
Wildfire Risk and Changing Utility Business Models | PNNL

Register for Part Three

Reference Background

- Current Best Practices
- Wildfire Mitigation Plan Database
- Full Study: *Burn Rate*
- Landscape Review (August 2025)





Webinar One summary

Part One of this three-part webinar covered:

1. Utility wildfire mitigation as a new and growing cost for electric utilities and customers
2. Direct costs of utility wildfire mitigation, and how they vary by types of expenses, program area, risk reduction, and utility type
3. Indirect costs of utility wildfire mitigation, such as insurance, cost of capital, and other bedrock costs of electric service
4. Drivers of indirect costs, such as risk of ignition of a wildfire and resulting liability
5. How the direct and indirect costs of wildfire translate into utility rates

PART ONE: FRAME THE PROBLEM

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A full PNNL resource list is available at:
Resource Library | PNNL

Agenda for today

In Part Two of this series, we provide potential cost reduction strategies that mitigate wildfire risk while increasing affordability and customer value for the same investment.

- Overview of state policy solutions
- Direct mitigation strategies for affordability
  - Multi-benefit technologies
  - Leverage existing utility programs
- Tools to manage financial risk

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Senior Economist

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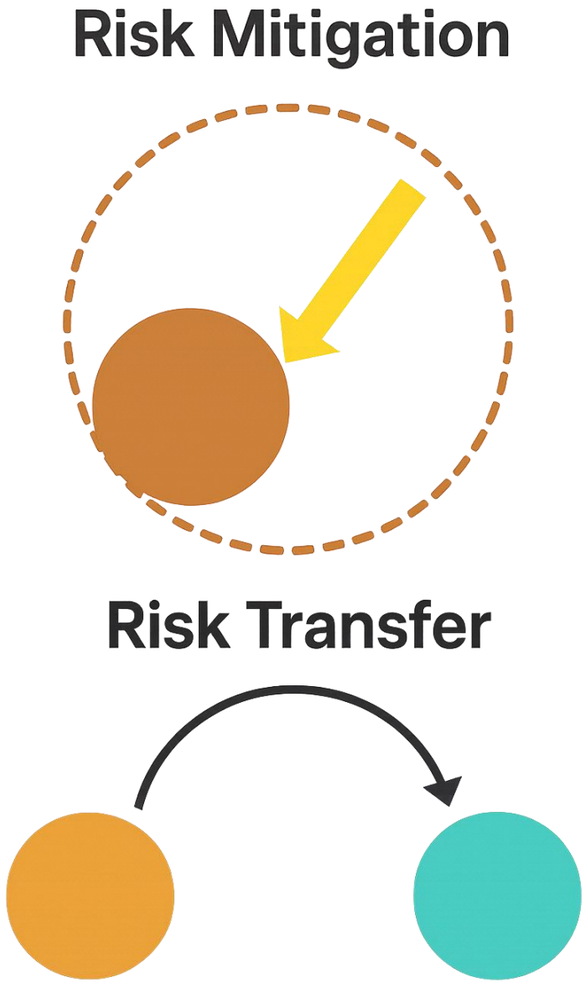
Research Principal

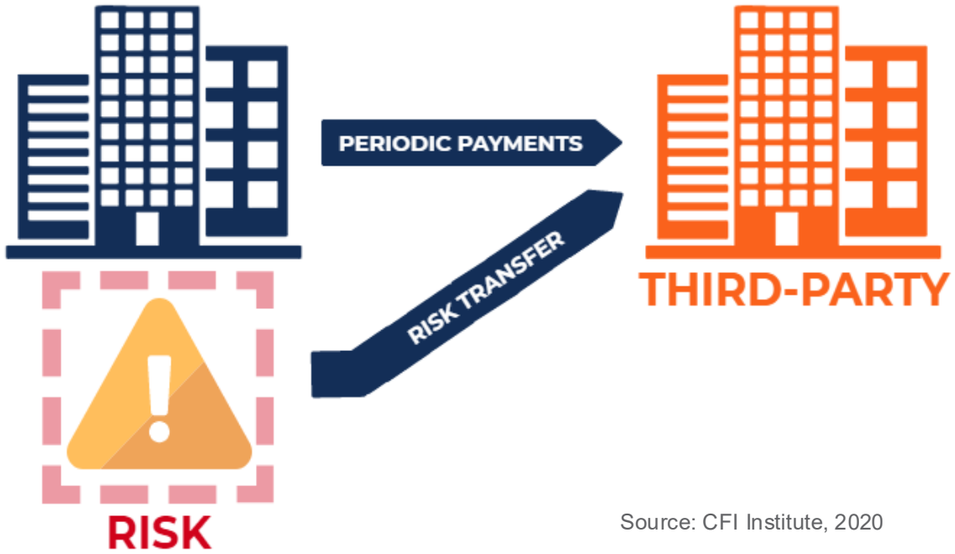
Risk Mitigation or Risk Transfer?

- Utilities can address wildfire risk via **mitigation or transfer**
- Mitigations are changes to operation and investment strategies that either **lower the probability or reduce the impact** of a risk event should it occur
  - Example: Wildfire Mitigation Plans outline the risk mitigation approach taken by utilities
- Contractual risk transfers are approaches that **move the financial burden** of risk to a third party
  - Insurance and policy action are two mechanisms being used to manage risk by transferring the financial impact to other parties



Financial Transfers of Risk

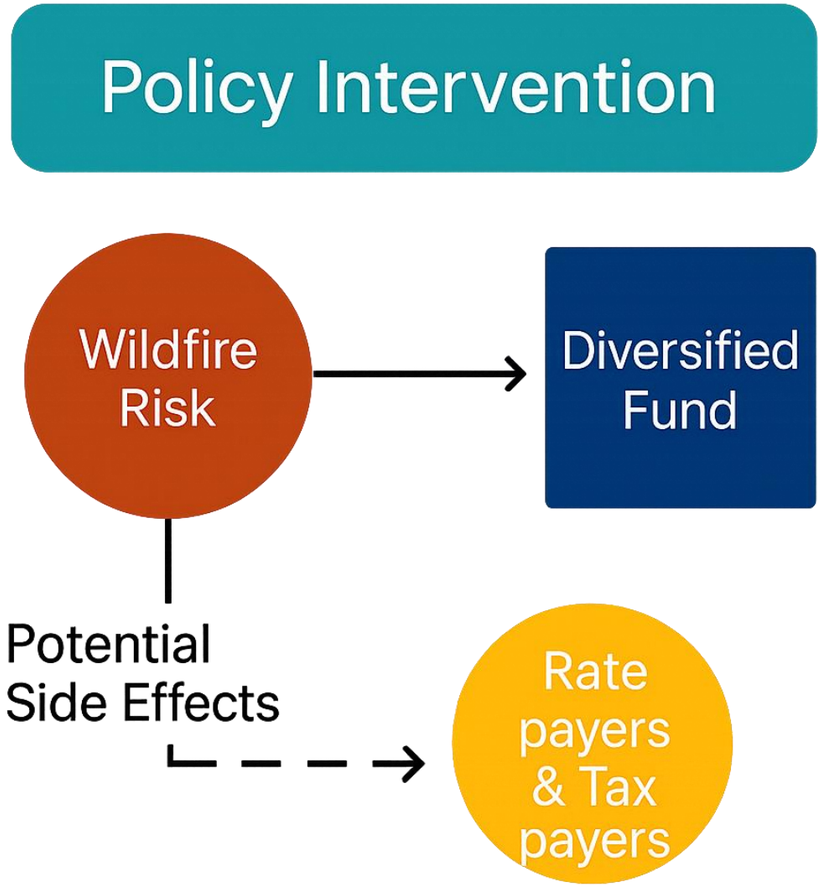
- It is common for many industries commonly transfer risk using financial mechanisms
  - **Insurance** is the most common example of this, but other mechanisms including **securitization** can move risk to different parties
- Third parties can be better positioned to manage the financial impacts of risk, through **diversification**
- Not all types of risk may be transferable, **and transferring risk my not always be cost effective**



Source: CFI Institute, 2020

Policy driven transfers of risk

- Policymakers often step in when risks **exceed the private sectors capacity** to absorb them
- Government actions can move risk by:
  - Creating **new public entities** to hold risk
  - Reforming **liability standards** to shift who pays for damages
- Well-meaning policies can sometimes have unintended consequences
  - **Hidden costs and transfers** should be considered alongside the policy's main goal



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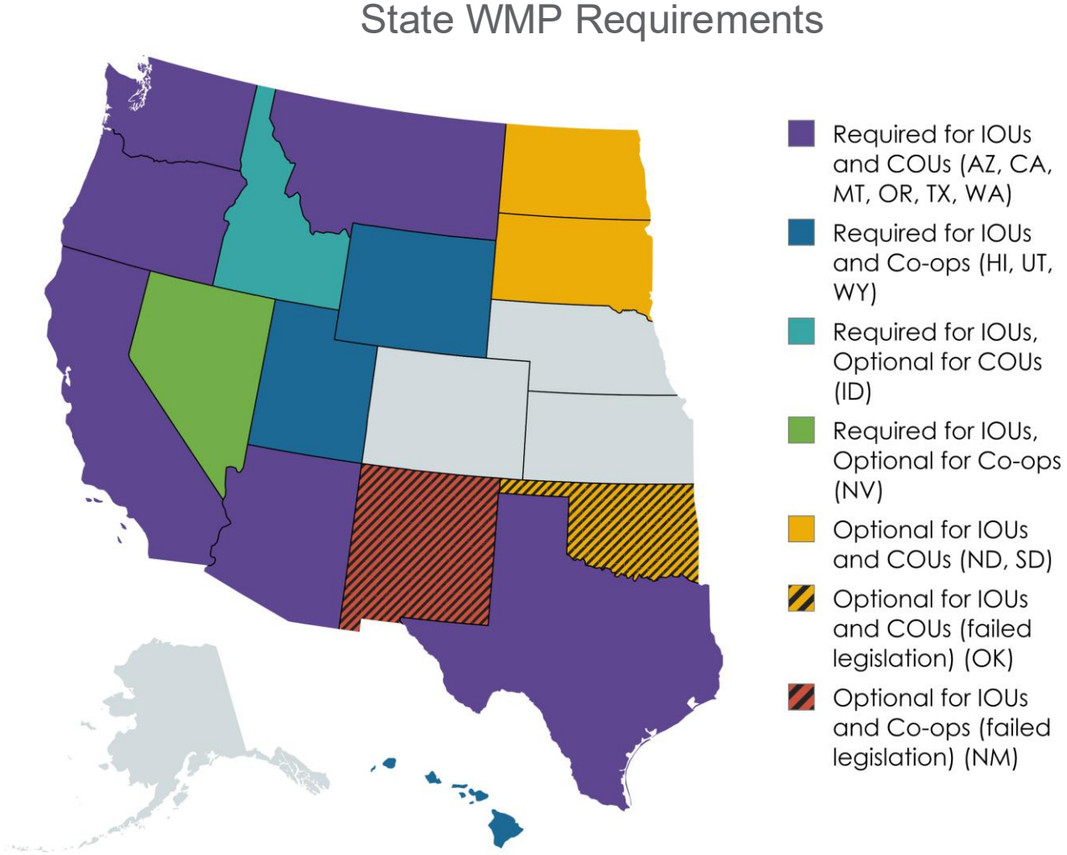
4

State Policy Solutions to Utility Wildfire Risk Mitigation

Wildfire Mitigation Plans are Linked to Liability Protection in Some States



States have considered how WMPs can provide protections from liability risks, including:

- Requiring third party approval of WMPs,
- Associating WMP compliance with negligence immunity,
- Associating WMP compliance with damage caps, and
- Associating WMP compliance with payment funds or bonds.

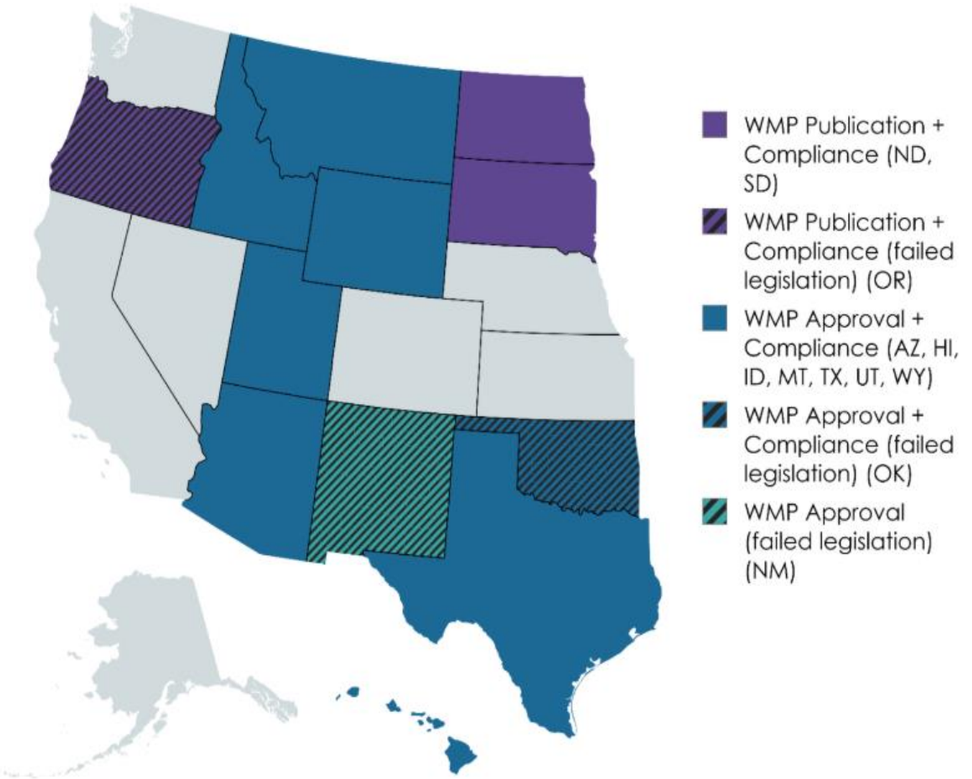
Legislative action to reduce utility litigation exposure

The scale of litigation following a utility-ignited wildfire has the potential to impose substantial costs, credit downgrades, and bankruptcy on utilities. In recognition of this risk, state legislatures reduce liability through:

- Moving from strict liability to negligence law for wildfire claims
- Establishing that the standard of care has been met through compliance with a WMP

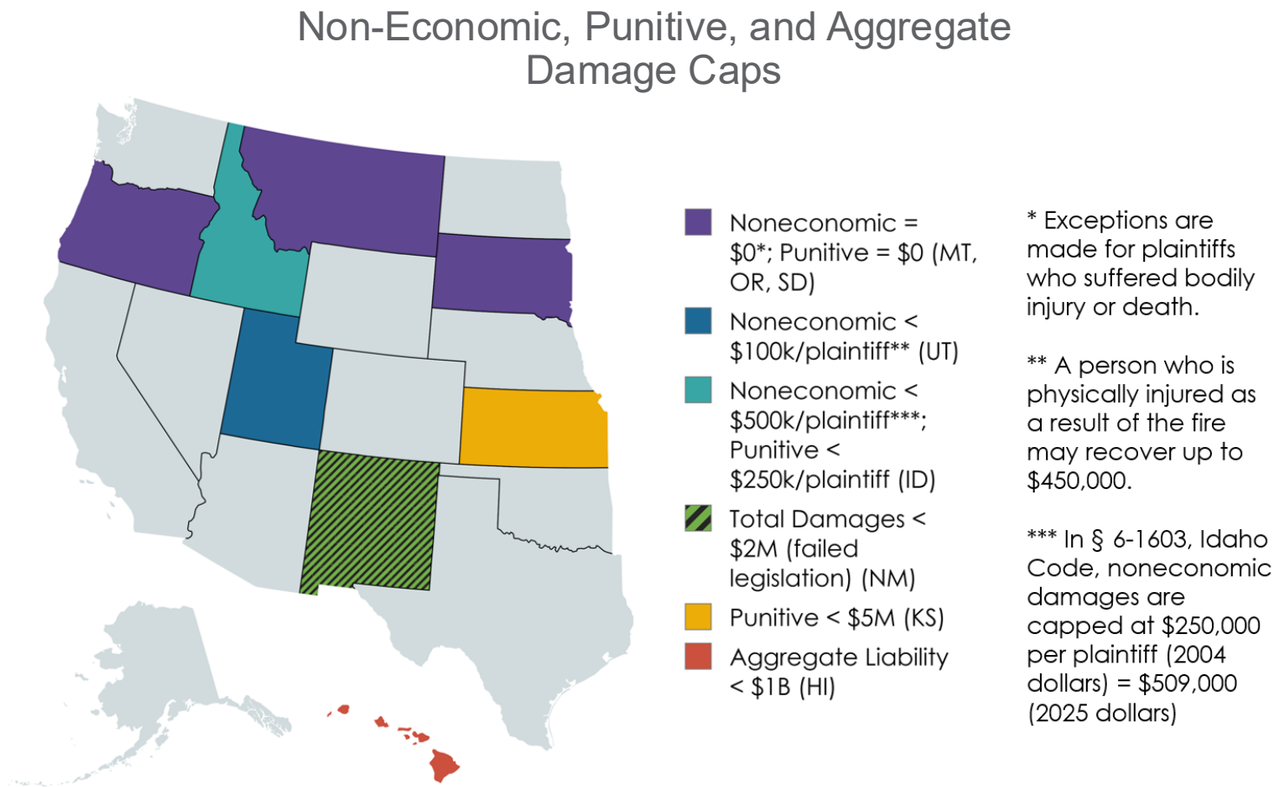
Goal: Set boundaries for economic damage claims and third-party liability.

Legislative Liability Reduction Requirements



Utility Wildfire Risk and Liability Legislation Tracker - PNNL-SA-216556.xlsx

Limits on noneconomic and punitive damages



Utility Wildfire Risk and Liability Legislation Tracker - PNNL-SA-216556.xlsx

Laws setting damage caps set limits on:

- Noneconomic,
- Punitive, and
- Total damages

They can be set on the aggregate scale, or on a per-plaintiff basis.

Economic damages are typically set according to a formula based on the assessed value of lost property rather than explicit limits set by law.

Goal: Set boundaries for economic damage claims and third-party liability.

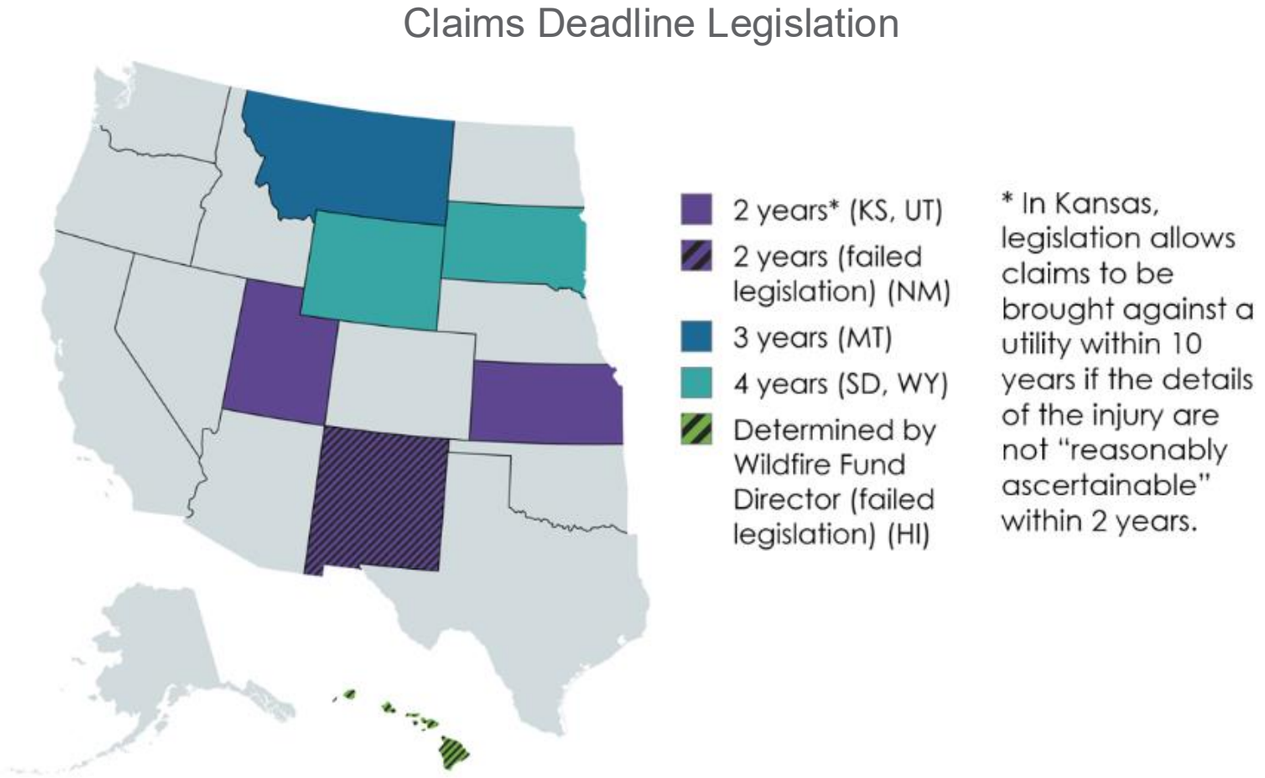
Deadlines to file claims against utilities after a wildfire

State legislatures also established claims deadlines for bringing a claim.

These limits range from **two to four years following the ignition of the wildfire**.

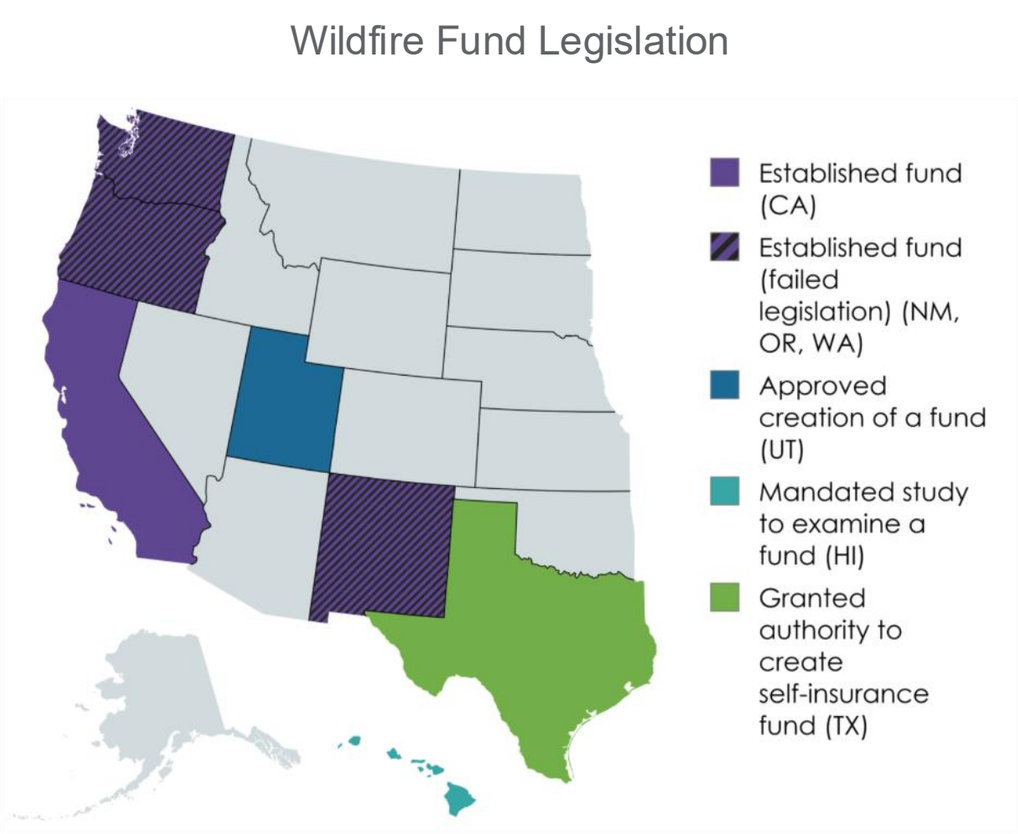
Claims deadlines are typically contingent on approval of a utility WMP.

Goal: Provide certainty that all claims are filed at a certain date.



Utility Wildfire Risk and Liability Legislation Tracker - PNNL-SA-216556.xlsx

Establishment and exploration of financial backstops for utilities paying claims



California was the first state to establish a financial backstop for utilities that ignite wildfires, and the California Wildfire Fund remains the only fully capitalized and accessible pool to support litigation claims.

Other funds are in various stages of development or maturity in Utah, Hawaii, and Texas.

Funds can be capitalized through a combination of ratepayer and shareholder contributions.

Goal: Ensure ability to cover damage claims without sudden rate increases.

Utility Wildfire Risk and Liability Legislation Tracker - PNNL-SA-216556.xlsx

Legislation types and costs they mitigate

Each legislative approach seeks to provide cost certainty or constraints for certain damage types including utility infrastructure damage, economic damage from outages, and third-party liability.

Legislative Approaches to Mitigating Wildfire Damages and the Type of Cost it Attempts to Mitigate

Damage or Cost Type	Wildfire Mitigation Plans (WMPs)	Authority to Approve WMPs	Modified Liability	Modified Damages	Wildfire Funds	Self-Insurance Funds
Damage to Utility Infrastructure	X	X				X
Economic Damage from Outages	X	X	X	X		X
Third Party Liability from Fires			X	X	X	X

PNNL Resource Library Including our Utility Wildfire Risk and Liability, Legislation, and Rules Tracker

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5

Multi-Benefit Technology Solutions

Multi-Benefit Solution: Advanced Transmission Technologies (ATTs)

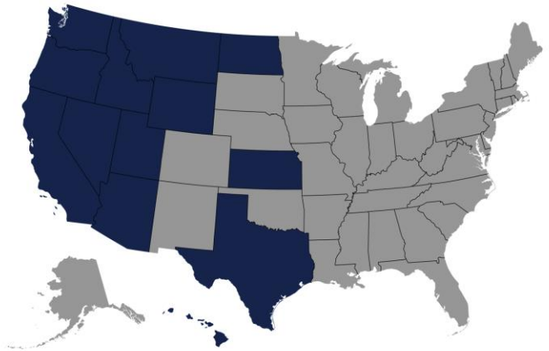
In addition to technologies that are specifically for wildfire mitigation, ATTs are a class of technologies that are primarily implemented for blue-sky conditions, but which also have potential wildfire benefits.

Technology	Primary (Operational) Benefits	Secondary (Wildfire) Benefits
Dynamic Line Rating (DLR)	Reduced congestion and increased transfer capacity; Improved cost efficiency and grid utilization.	Reduced risk of thermal overload; Lower sag and contact-related ignition risk; Alternative to de-energization.
Advanced Power Flow Controls (APFC)	Improved performance under contingency conditions; Increased usable transfer capacity on existing lines; Reduced renewable curtailment.	Reduced overload risk; Mitigation of thermal and mechanical stress on transmission equipment.
Transmission Topology Optimization (TTO)	Reduced congestion; Improved robustness to single-element outages; Enhanced integration of new generation and load.	Reduced overload risk; Mitigation of thermal and mechanical stress on high-risk corridors and feeders; Shifted flow from fire-prone areas.
Advanced Conductors	Higher utilization of current infrastructure; Smaller cost and environmental impact compared to building new lines.	Higher clearances under load; Lower likelihood of conductor contact with vegetation.
Distributed Energy Resources (DER)	Backup power to critical loads; Smoother restoration and cold-load pickup; Reduced feeder stress during contingency conditions.	Smaller emergency de-energization footprint; Service continuity to critical loads via local supply; Lower operating stress on high-risk circuits.
Line Sensors & Conductor Monitoring	Improved reliability and situational awareness; Reduced outage duration; Proactive condition-based asset management and maintenance strategies.	Earlier detection and faster isolation of abnormal conditions; Lower risk of overheating, arcing, and ignition.

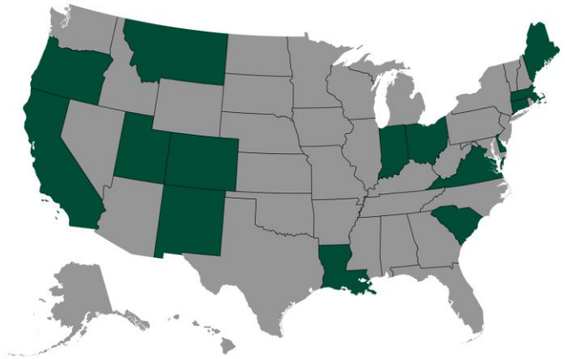
(PNNL, Wildfire Benefits of Advanced Grid Technologies, 2025; PNNL and UC Davis, Wildfire Co-Benefits of ATTs, 2026)

Converging State Policy for Wildfire and Advanced Transmission Technologies (ATTs)

States with Wildfire Legislation



States with ATTs Legislation



In recent years, states have enacted legislation addressing both utility wildfire risk management and the evaluation or deployment of grid enhancing technologies and ATTs, offering an opportunity to advance two policy objectives with one set of investments.

Advanced Transmission Technologies offer:

1. Direct ignition risk reduction through reduced current and/or conductor temperature and reduced line sag, and
2. Indirect wildfire benefits through reduced scale of emergency de-energizations.

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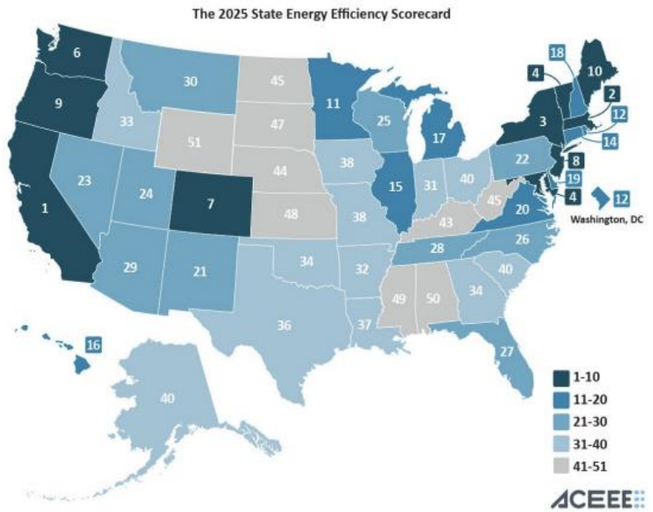
Leveraging Utility Programs

Potential co-benefits exist between load reduction and wildfire mitigation benefits

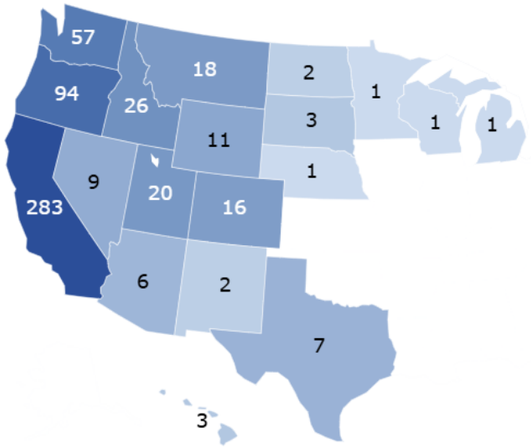
Some utilities and states that have significant investments in load reduction programs (also known as energy efficiency) also have significant risks and investments in wildfire mitigation.

ACEEE 2025 State Ranking for efforts to advance energy efficiency



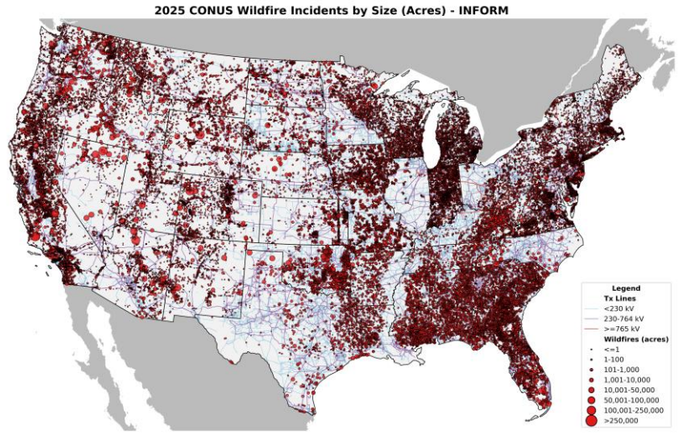
(Kresowik et al. 2025: ACEEE 2025 State Energy Efficiency Scorecard)

Wildfire Mitigation Plans by State



([Statistics on Wildfire Mitigation Plans])

2025 Wildfire Events, by Scale

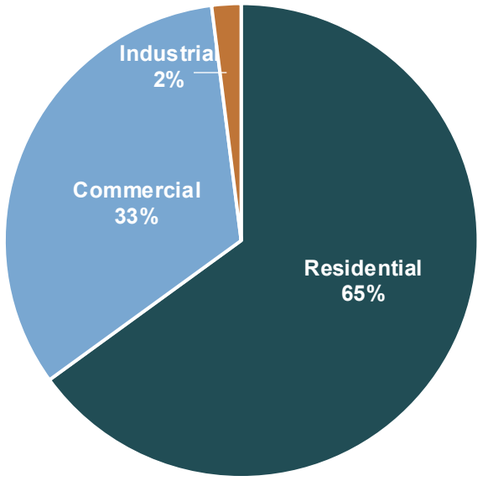


(Source: InFORM, Map Credit: PNNL)

Potential cost reduction opportunity

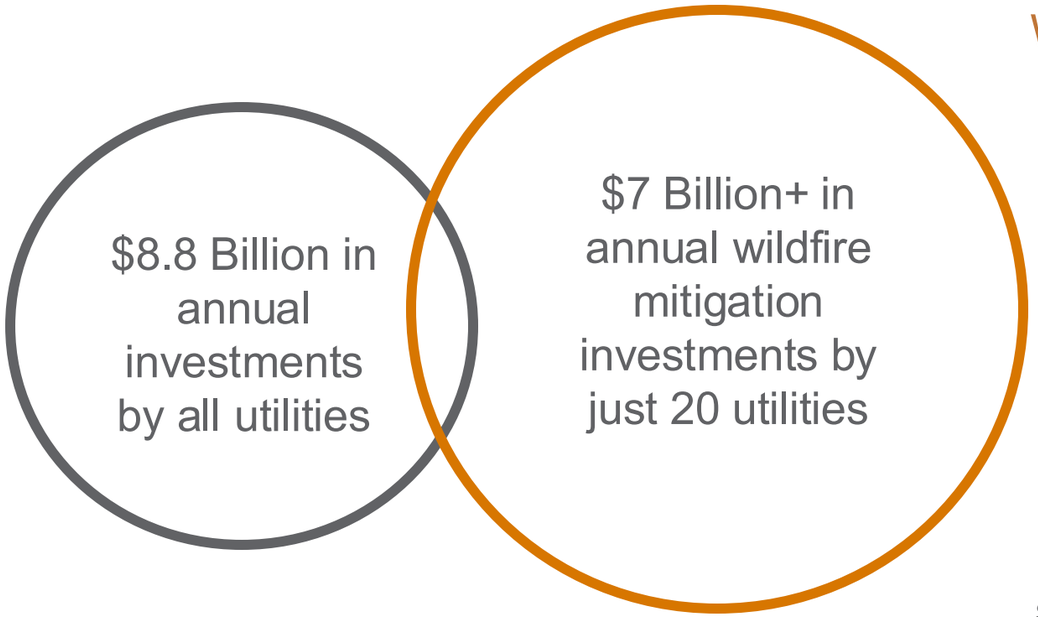
By prioritizing load reduction measures that reduce wildfire damage, utilities can support community resilience and reduce overall implementation costs.

Load Reduction Program Breakout by Sector

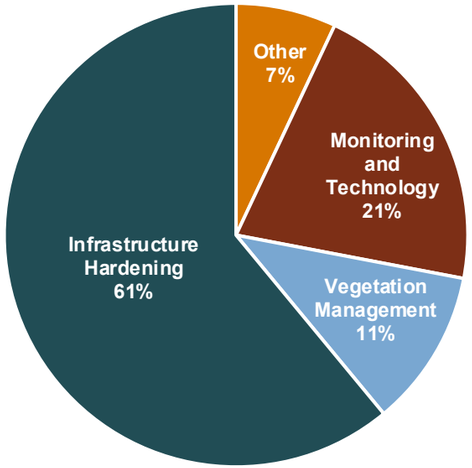


Most load reduction investment is to reduce the cost of residential energy bills.

Data from ACEEE 2025 State Energy Efficiency Scorecard



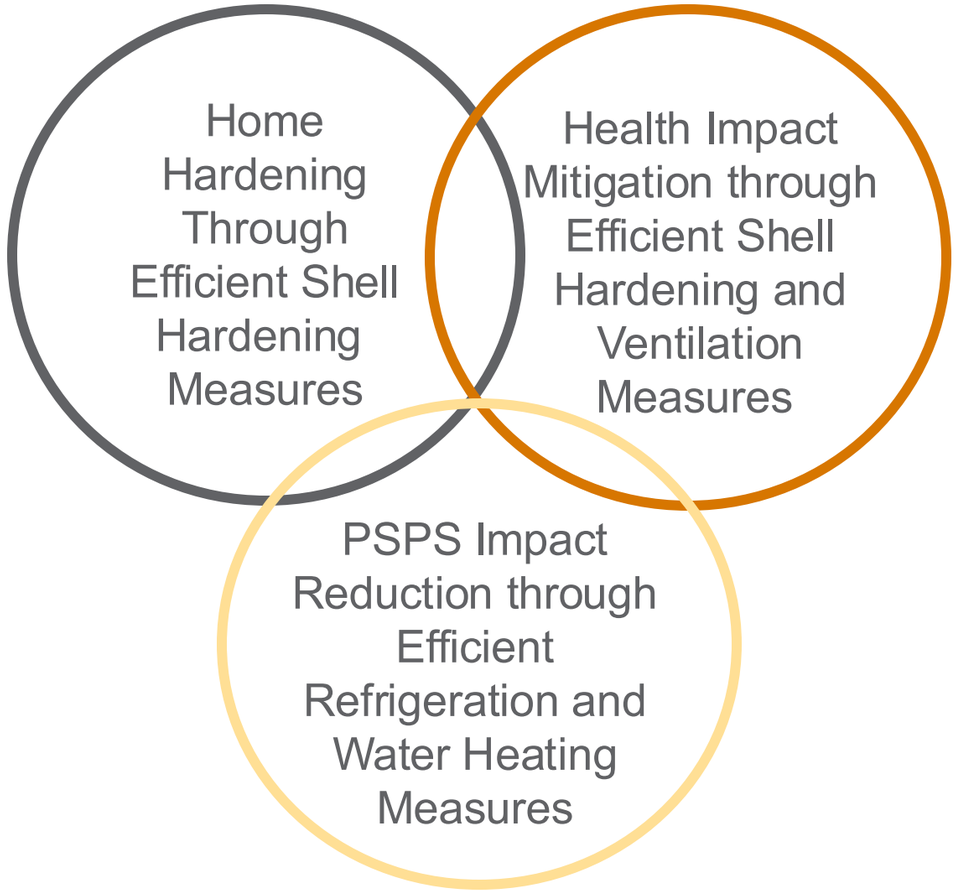
Wildfire Investment Breakout



Data from SDG&E 2020-2022

Significant wildfire mitigation investment is to prevent utility caused ignition.

Accounting for benefits across programs



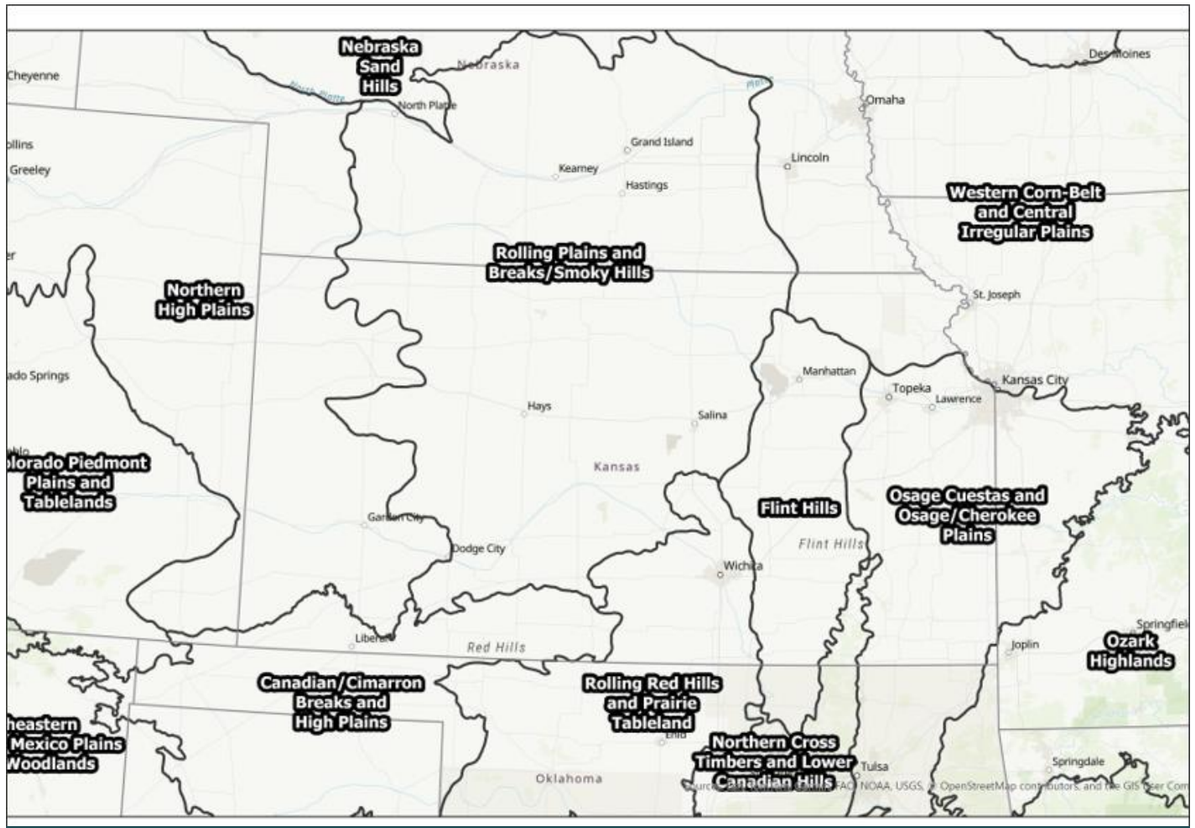
Coordination can increase the effectiveness of utility wildfire mitigation efforts while offsetting increased electric costs through aligned processes:

- Determine areas at greatest risk of weather driven and PSPS events (example Wildfire Risk Evaluation of the System Tool (WREST) | PNNL)
- Include fire safety audits in energy audits, and energy audits in wildfire safety audits
- Highlight wildfire mitigation impacts of load reduction measures in promotion activities
- Include wildfire co-benefits in load reduction program cost-benefit calculations where allowable

Detailed information including methodology and tools, will be available in the forthcoming publication (projected August 2026): Kincaid J.B., and K.G. Abernethy-Cannella. 2026. "Load Reduction and Wildfire Mitigation: Surprise Synergy." PNNL-SA-220702. *ACEEE Summer Study*.

Wildfire mitigation solutions may be easier and more cost-effective beyond the corridor

- Cooperative fuel and danger tree removal
- Beyond-ROW vegetation management
- Firefighting and emergency response enhancements
- Integration with local economies
- Multi-value sensors
- Local weather conditions and fuel conditions



Pyromes are geo-spatially-defined landscapes with common wildfire attributes, spanning state lines. (Kansas-area pyromes, Credit: PNNL)

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Managing Financial Risk

Utility Securitization for Wildfire Cost Recovery

- Securitization is a mechanism to fund extraordinary, one-time costs via utility special purpose vehicle-issued, ratepayer-backed bonds.
  - Past uses have included early power plant retirement, storm recovery, and debt restructuring
  - Emerging trend to use for different types of wildfire costs

Over $16 billion

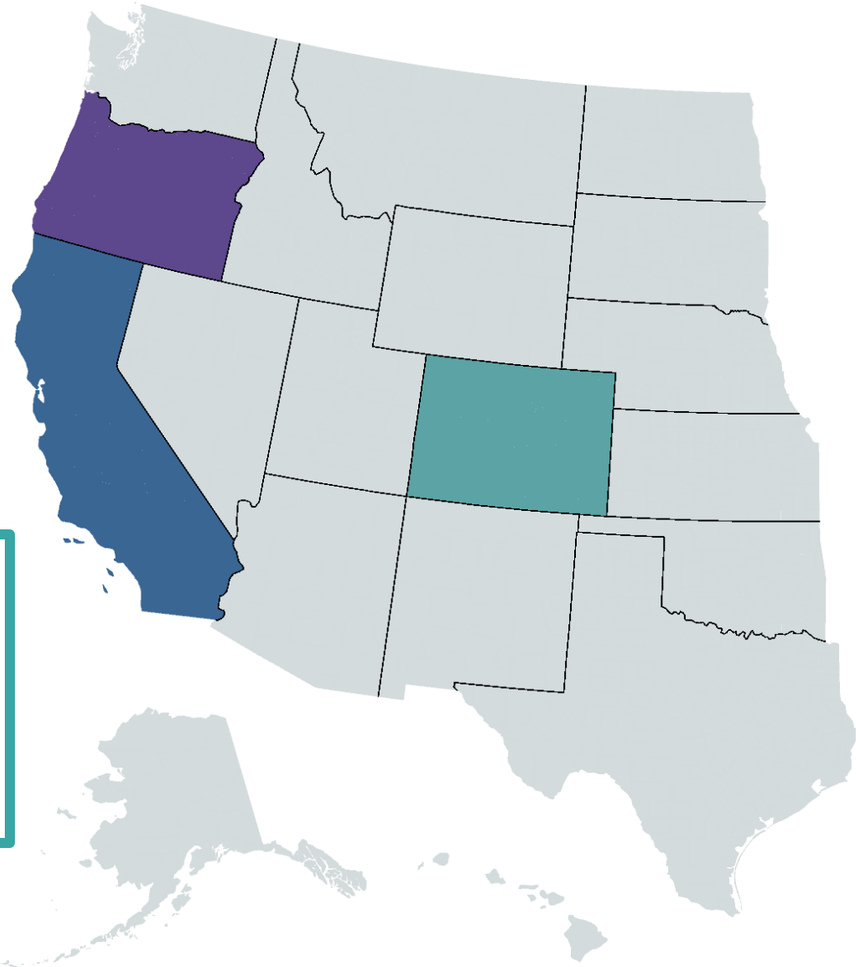
A 2022 spike in amount for all utility-related securitization issuances, in only 13 deals

Source: "Credit FAQ: The Rationale Behind U.S. Utility Securitization And Reasons For Recent Growth." March 2024. *S&P Global 2024*

Self-insurance for liability costs (e.g., Oregon in 2026)

Post-fire recovery (e.g., California)

Proactive wildfire mitigation capital expenditures (e.g., Colorado in 2025)

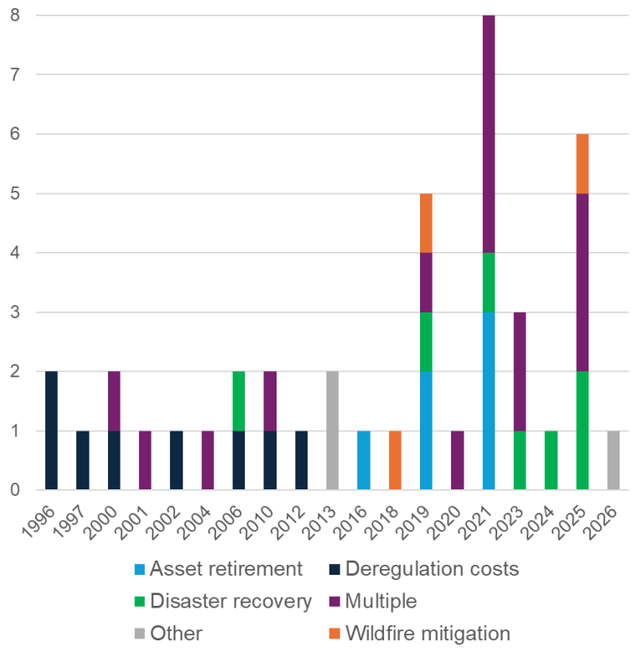


Examples of States That Have Authorized Wildfire-Related Securitization

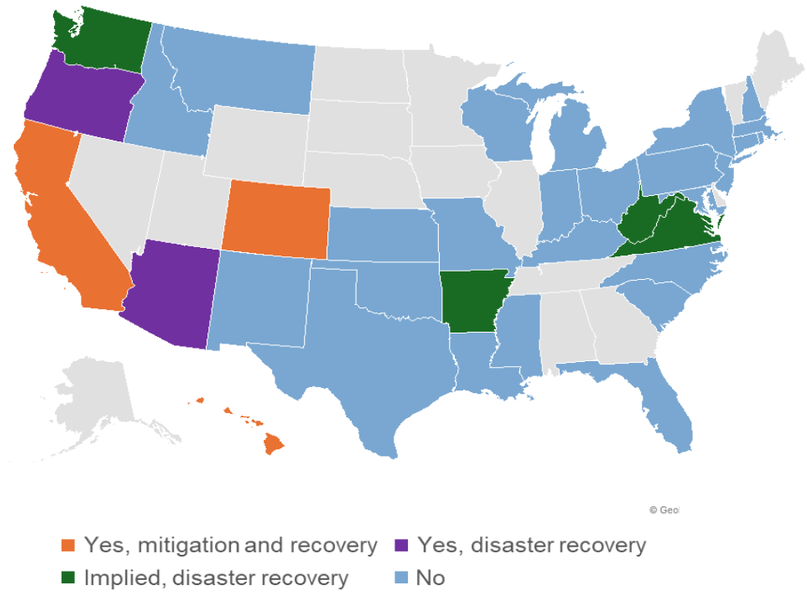
Source for figure: S&P Global 2024

State Authorization of Utility Securitization

Securitization Legislation by Year Enacted and Eligible Costs



Eligibility of Wildfire Costs for Securitization by State



Uses of utility securitization have evolved over time. Disaster recovery and wildfire costs have driven a recent increase in legislative activity.

- **9 states allow securitization of different types of wildfire costs.**
- **Recovery:** Explicit or implied (as natural disaster / extreme weather). Utilities can issue bonds for post-event rebuilding costs.
- **Mitigation:** Utilities can issue bonds for proactive investments.
  - California (AB 1054) and Hawaii (SB 897) *require* utilities to securitize initial portion of WMP capital spending.
  - Colorado approved $1.2B securitization for Xcel's 2025-2027 WMP.
- **Liability:** In 2026, Oregon passed law allowing securitization for utility self-insurance, a response to wildfire challenges (HB 4077).

Utility securitization of wildfire costs

- Use of bonds for wildfire expenses is increasing.
- **Benefits of securitization:**
  - Often credit-positive for utilities (bonds are highly rated)
  - May be more affordable for ratepayers (lower interest rates)
- **Key considerations:**
  - Requires enabling legislation to define eligible costs
  - Comparative evaluation is necessary to determine ratepayer impacts vs. alternative methods
  - Financing orders separate from standard rate cases; requires mechanisms for oversight and prudence review
  - Once issued, financing orders are irrevocable and ratepayers responsible for full amount

46%

Percentage of proceeds from all utility-related securitizations dedicated to wildfire costs (2022-2023)

Source: "Credit FAQ: The Rationale Behind U.S. Utility Securitization And Reasons For Recent Growth." March 2024. *S&P Global 2024*

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Insurance alternatives: When do backstops make sense?

- Public backstops can add a layer of coverage and help stabilize commercial insurance markets for high-risk sectors.
- A federal or multistate backstop fund may be one solution to the rising cost of wildfire liability insurance.

PROGRAM	PURPOSE
National Flood Insurance Program (NFIP)	Public insurance created to fill limited commercial flood insurance for high-risk homeowners. Has faced some criticism for low premiums leading to adverse incentives.
Price-Anderson Nuclear Industries Indemnity Act (PAA)	Federal backstop created in response to lack of sufficient commercial insurance to cover potential catastrophic risk of nuclear accidents. Supplements commercial insurance.
Terrorism Risk Insurance Act (TRIA)	After September 11, 2001, commercial insurers limited terrorism coverage, creating need for backstop coverage for catastrophic risk. Operates as reinsurance.
Municipal risk pools	Municipalities pool funds as alternative or supplement to commercial insurance. Pools are operated collectively as nonprofit entities.

Existing programs and approaches offer potential models and key lessons for a multistate fund for utility wildfire liability

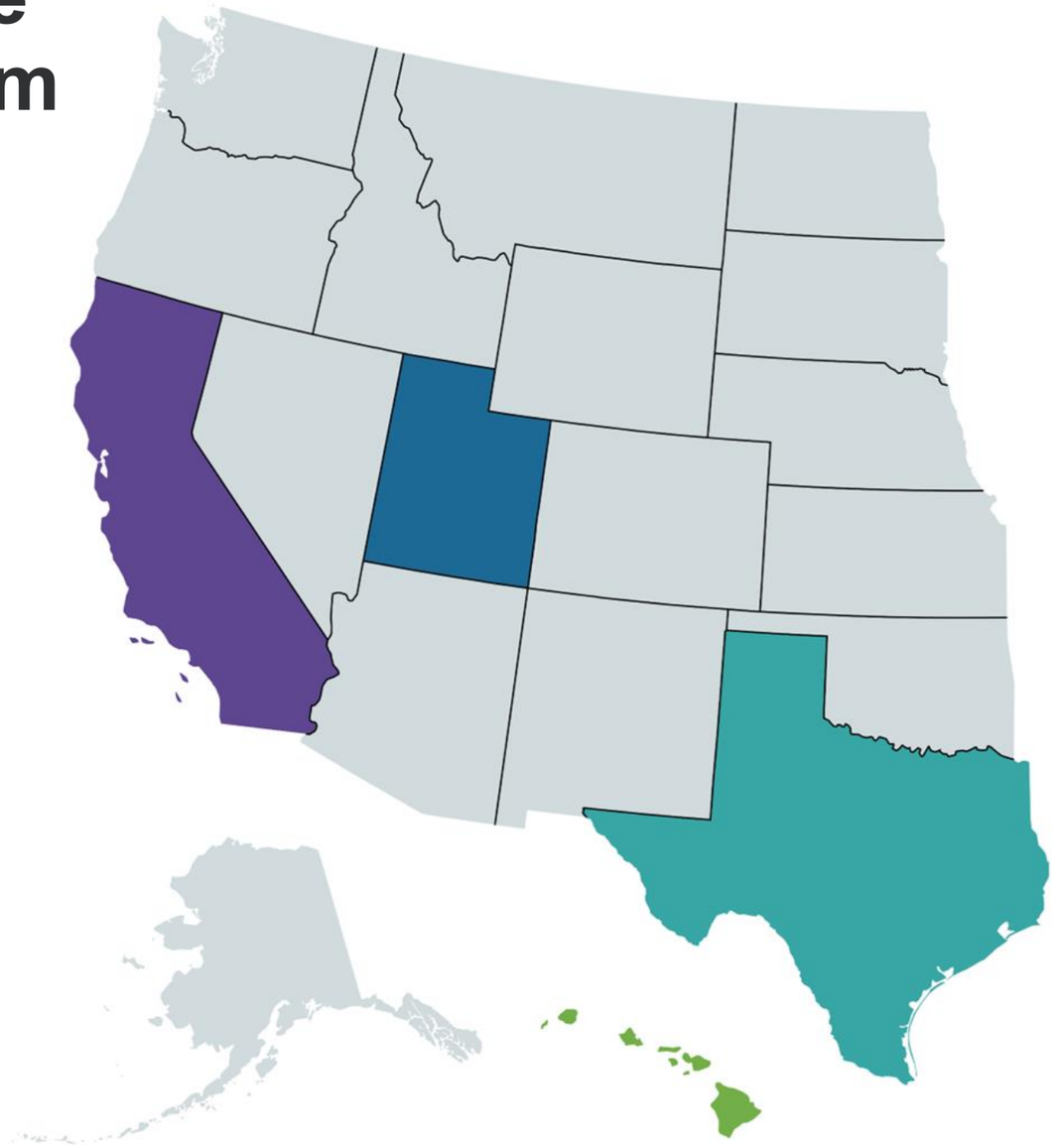
State actions on wildfire liability insurance reform

California: State fund for utility wildfire liability created in 2019 (AB 1054). Investor-owned utility ratepayers and shareholders contribute equally. Access requires approved WMP and no negligence finding.

Utah: 2024 legislation (SB 224) allows utilities to create ratepayer-funded self-insurance fund for wildfire liability as supplement to commercial insurance. Legislation also established liability caps.

Texas: 2025 legislation (HB 145) allows utilities to create self-insurance fund as supplement or alternative to commercial insurance if less costly to ratepayers. Requires approved WMP and no negligence finding.

Hawaii: Law passed in 2025 (SB 897) directs PUC to study options for state wildfire fund. Study concluded that fund should not be established without liability reform and additional analysis.



Considerations for a federal or multistate wildfire insurance backstop

- Compared to state or utility-level backstop funds, **a larger, more diversified risk pool** operated at a federal or multistate level could offer more market stability and affordability benefits.
- Consumer- and investor-owned utilities have similar demand for improved insurance.
  - Shared participation may require participating states to determine whether any statutory limits exist on risk pooling between different utility types.
  - Consider options to ensure fair capitalization approaches if IOUs and COUs both contribute.
- Key questions for design and operation include:
  - Risk mitigation activities required for fund access
  - Capitalization mechanisms and approach (e.g. balance of ratepayer and shareholder contributions, any other sources of funding)
  - Approach to attachment point (deductible) and exhaustion point (payout limit) for participants
  - Operational and oversight body, which could be federal or multi-state, and could be organized to offer additional benefits to participants (e.g. capacity, expertise)
  - Role of liability reform, and whether standardization is needed or beneficial

Summary

In Part Two of this series, we provided potential cost reduction strategies that mitigate wildfire risk while increasing affordability and customer value for the same investment.

- Overview of state policy solutions
- Direct mitigation strategies for affordability
  - Multi-benefit technologies
  - Leverage existing utility programs
- Tools to manage financial risk

PART TWO: EXPLORE SOLUTIONS

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11:00 am–12:00 pm PT

PNNL will present an analysis of potential cost reduction strategies and provide an overview of the complexity of charting a path to affordability.

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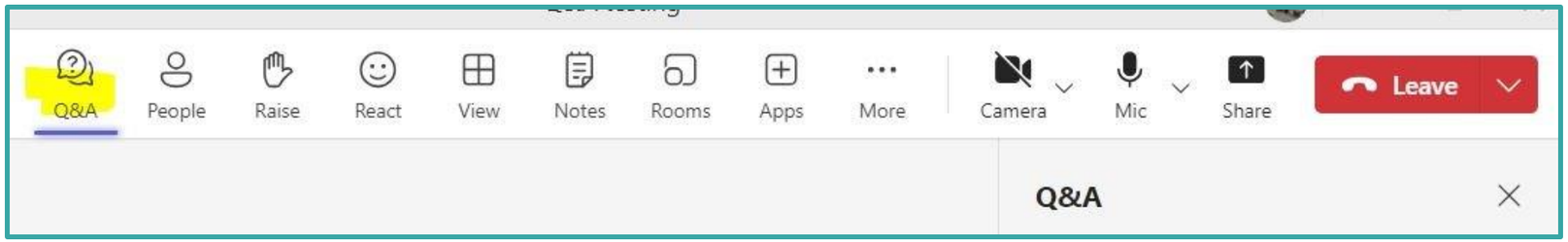
Q&A

How To Use Microsoft Teams Q&A

Please share your questions using the Q&A tab or by emailing us at wildfire@pnnl.gov.



Contact:
wildfire@pnnl.gov
https://wildfire.pnnl.gov
https://www.pnnl.gov/projects/wildfire-risk-resilience/changing-utility-business-models

Webinar Three is June 18

In Part Three, PNNL will facilitate industry and research leaders for a discussion about finance and risk trends and future directions for utilities managing wildfire risk.

Ali Arabnya
Director of Risk Strategy
Pacific Gas & Electric

Bob Mudge
Principal
The Brattle Group

Ann Rendahl
President
National Association of Regulatory Utility Commissioners

Michael Wara
Senior Research Scholar
Stanford University

Facilitated by
Rebecca O'Neil, Research Principal, Pacific Northwest National Laboratory

PART THREE: INDUSTRY THOUGHT LEADERS

Thursday, June 18
11:00 am–12:30 pm PT

PNNL will convene industry thought leaders in a discussion of the impacts of wildfire on utility business models and opportunities to increase energy affordability while mitigating risk.

Please join us for Part Three

Wildfire Risk and Changing Utility Business Models | PNNL

Register for Part Three

Thank you

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