TESCO METERING

Wildfires and Back-Up Power

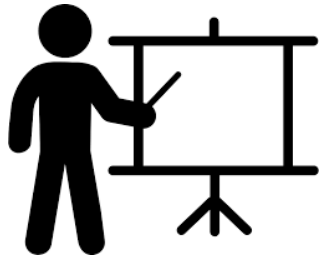
A case study in connecting and switching easily, safely, and automatically between back-up power and the grid

Grid Edge Technologies Knowledge Hub- Booth #2041

DISTRIBUTECH® CONFERENCE & EXHIBITION

Prepared By: PG&E and TESCO Metering

Date: March 26, 2025



Introduction

TESCO METERING

Welcome & Introduction

Wildfires and Back-Up Power

Prepared for:

DISTRIBUTECH® CONFERENCE & EXHIBITION

Grid Edge Technologies Knowledge Hub- Booth #2041

Tom Lawton
President & CEO
TESCO Metering

Table of Contents

Industry Context & Need Gap

Background: PG&E's Dilemma

The Challenge of Power Outages:

- Due to wildfires and other emergencies, utilities like PG&E have had to preemptively shut down power to protect property.
- There is a growing need for a reliable and **safe method** to switch between utility power and backup generators.

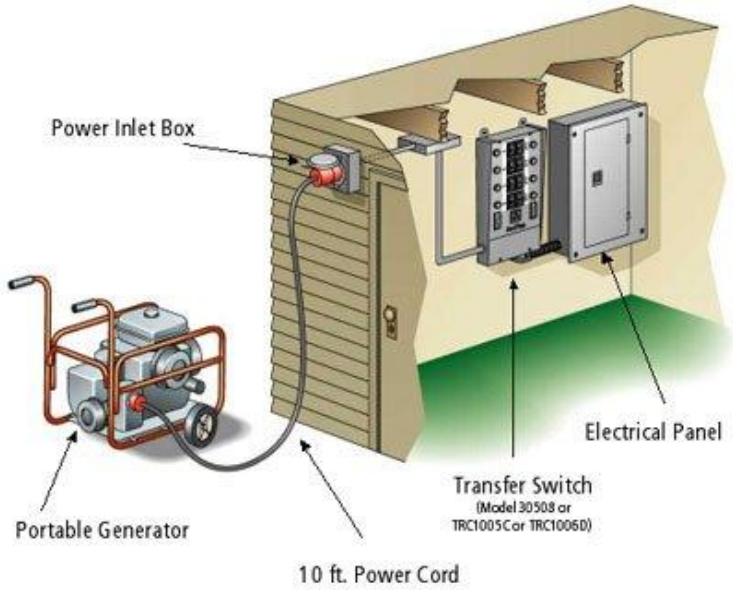
PG&E's Dilemma:

- Customers and the **California Public Utilities Commission (CPUC)** have urged PG&E to find a better solution for backup power access.
- Traditional options, such as **extension cords and manual transfer switches**, are either unsafe or prohibitively expensive.

Portable Generators: Standard Transfer Switch

How a Standard Transfer Switch Works

- A **manual transfer switch** is installed **between the home's electrical panel and an external generator inlet**.
- When utility power fails, the **homeowner must manually switch** from utility power to generator power.
- The generator must be **manually started**, and only the circuits connected to the transfer switch can be powered.
- The transfer switch **prevents backfeeding** by ensuring that utility power and generator power **are never connected simultaneously**.
- Since portable generators are **lower capacity** than the grid, most **transfer switches include a sub-panel**, allowing users to **select only certain essential circuits** to power.



Standard Transfer Switches: Challenges

Challenges & Disadvantages of a Standard Transfer Switch

Requires Professional Installation

- An electrician must install the switch, which can be **expensive ($1,000–$2,500+)**
- Installation is time-consuming and requires a **temporary power outage** during setup.

Manual Operation & Inconvenience

- The homeowner must **physically operate the switch**, which can be difficult during a storm or at night.
- If the outage occurs unexpectedly, users must go outside to **start the generator and engage the switch manually**.

High Cost & Maintenance

- The **cost of a standard transfer switch installation** (including an electrician) can be **more expensive than a generator itself**.
- Users need to maintain both the **generator** and the **transfer switch system**, adding complexity.

The Danger of Not Having BPTM

Existing Backup Power Solutions Are Inefficient or Risky:

- **Manual transfer switches** are expensive, often costing thousands of dollars for installation.
- **Extension cords** are dangerous and not ideal for connecting generators.
- Many utilities **reject third-party solutions** that interfere with the connection between the meter and the socket box due to legal concerns.

Safety and Performance Issues:

- Risk of **backfeeding**, which can be hazardous to utility workers.
- **Voltage surges and lost phases** can damage appliances.
- **Arcing in extension cords cause fires!**

Backup Generator: No BPTM Safety Hazards

Risk of Backfeeding into the Utility Grid

- Without a proper transfer switch, **generator power can flow back into the grid**, creating a serious **electrocution hazard** for utility workers and neighbors.
- Backfeeding is **illegal** in many areas and can lead to **severe liability issues** for homeowners.

Fire & Electrical Risks from Extension Cords

- Many users rely on **extension cords** to connect appliances to a generator.
- Most household extension cords **are not rated for high wattage**, increasing the risk of **overheating and fire hazards**.
- Using multiple cords across the house **creates a tripping hazard** and exposes wiring to potential **wear and tear**.

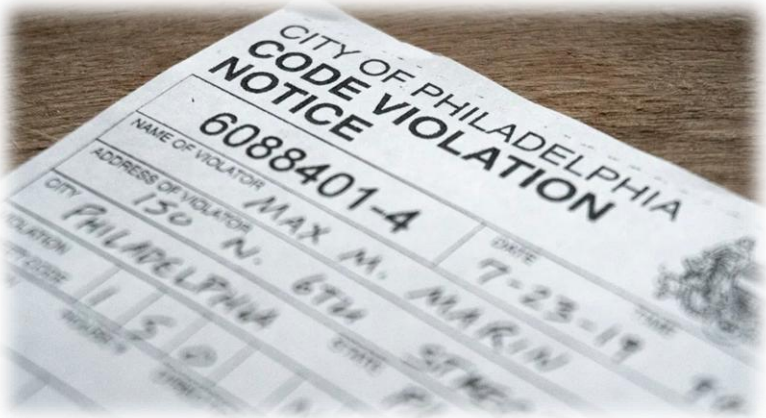
Overloading Circuits & Damaging Appliances

- Without **proper circuit protection**, users may accidentally **overload** their generator, damaging sensitive electronics and appliances.
- Hardwired systems like **well pumps, furnaces, and water heaters cannot** be powered through extension cords, leaving key household functions offline.

Backup Generator: No BPTM Compliance Issues

Violation of Electrical Codes & Utility Policies

- Many utilities **require a certified transfer switch** for home generator use to **prevent back feed** and other hazards.
- Homeowners using unsafe setups **may face fines, service disconnections, or denial of insurance claims** if damage occurs.



Liability Issues in the Event of an Accident

- If improper generator use causes a **fire, electrocution, or damage**, homeowners may be **liable for injuries or property loss**.
- Some home insurance policies **do not cover damages** caused by unsafe generator connections.

The BPTM Solution

TESCO METERING

How Does BPTM Solve These Problems?

- **Safely isolates generator** power from the utility grid, preventing backfeeding.
- **Eliminates the need for extension cords** by delivering power directly to the home's electrical panel.
- **Includes built-in circuit protection** to prevent overloads and surges.
- **Detects missing or unstable phases** and prevents the transfer from grid if power conditions are unsafe.
- **Automatically switches** between grid and generator power, reducing manual effort.
- **Fully compliant** with utility safety regulations, reducing liability risks.

Introducing the TESCO BPTM

Solution: The Backup Power Transfer Meter (BPTM)

Key Features:

- **Utility-Owned & Approved:** Installed directly in utility's electric meter socket, eliminating third-party concerns.
- **Automatic Switchover:** Seamlessly switches to generator power when utility power is lost and back when restored.
- **Safety Protections:** Includes **overload protection, backfeed prevention, and surge mitigation.**
- **No Extension Cords Required:** Powers the home safely through the main breaker panel.
- **Ease of Installation:** Typically installed in under **45 minutes** by utility certified personnel.
- **Versatility:** Compatible with **higher-amperage generators, solar panels, battery walls, and EV power sources.**

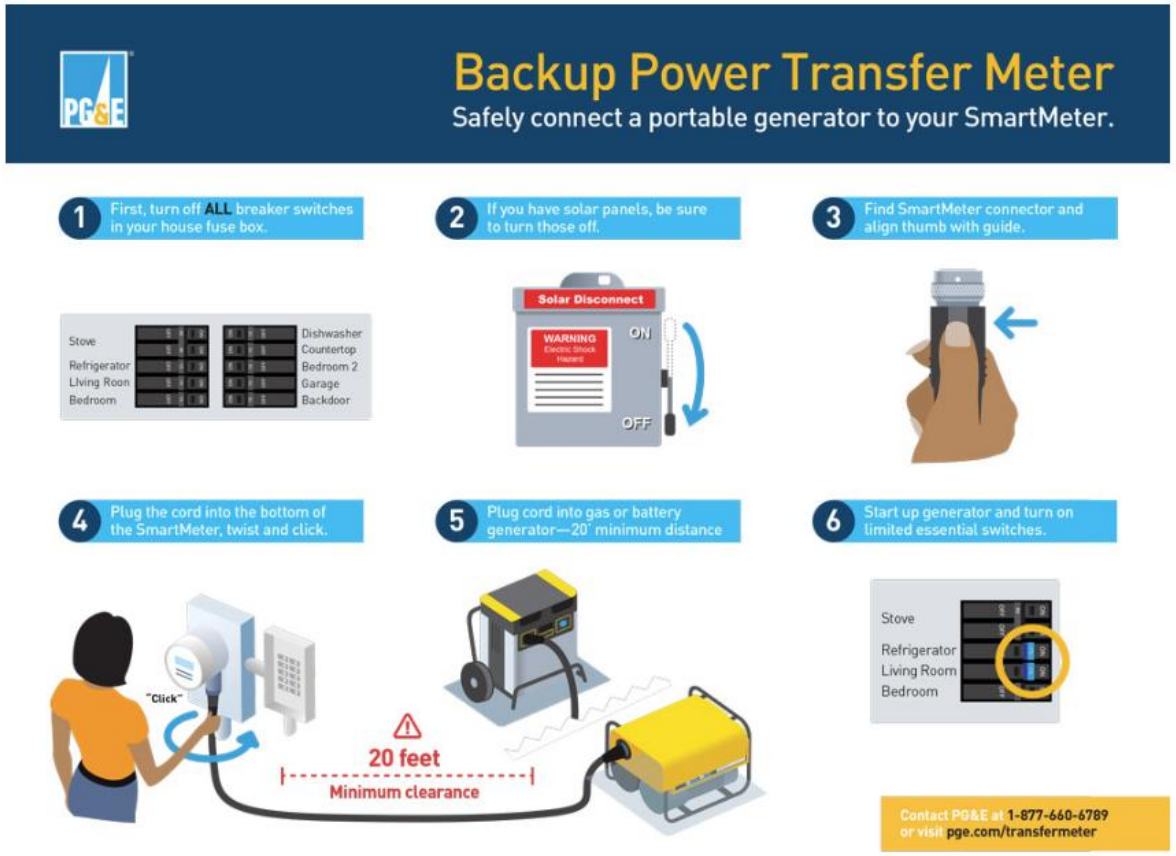
Advantages Over Other Solutions:

- More **cost-effective** than manual transfer switches.
- Avoids the risks associated with **DIY setups and extension cords.**
- **Maintains compliance** with utility-grade safety standards.

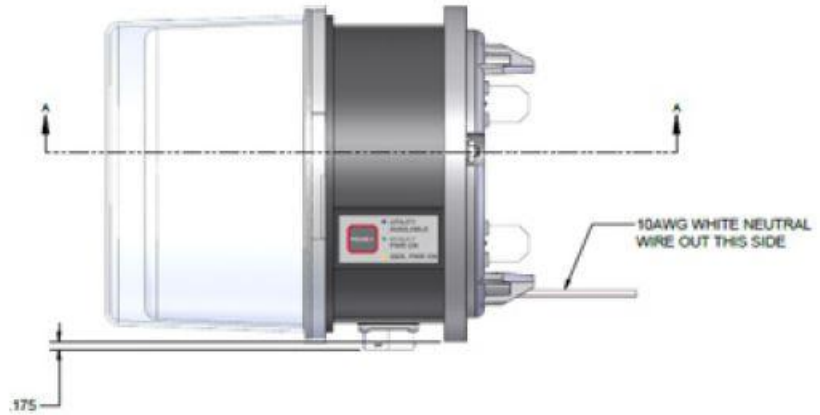
PG&E And Their BPTM Program: TESCO Powered

First-of-its-Kind Technology Allows PG&E Customers to Safely and Easily Connect Backup Power to Their Homes

Last Updated: Friday, 18 February 2022 05:56
Published: Friday, 18 February 2022 05:56



https://goldrushcam.com/sierrasuntimes/index.php/news/local-news/36768-first-of-its-kind-technology-allows-pg-e-customers-to-safely-and-easily-connect-backup-power-to-their-homes



https://www.pge.com/en/outages-and-safety/outage-preparedness-and-support/general-outage-resources/backup-power-transfer-meter-program.html

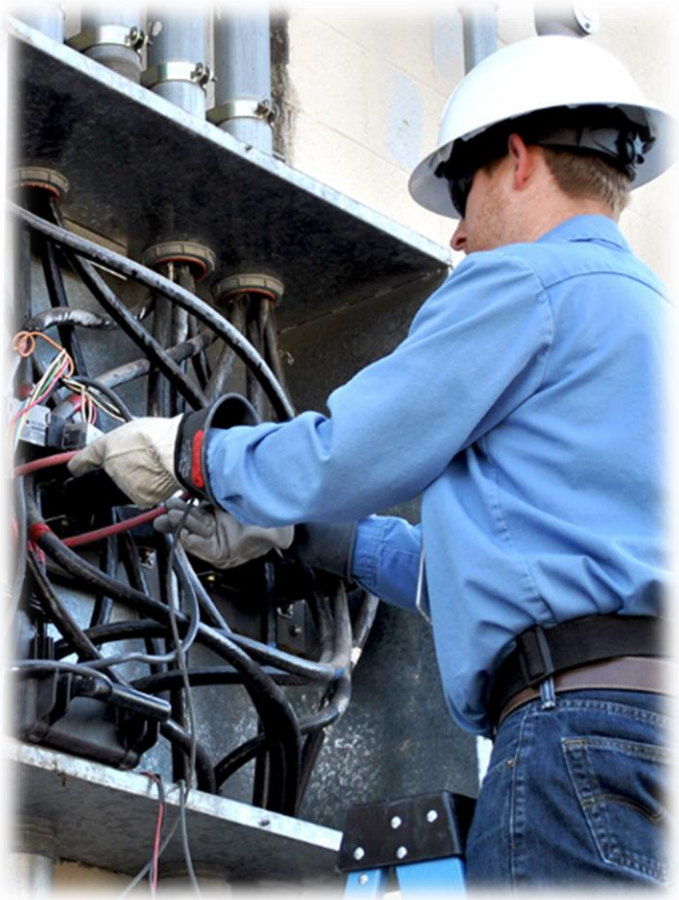
PG&E BPTM Results

Proven Success & Adoption

- PG&E has installed ~11,000 BPTMs since 2021.
- Expansion planned for more customers in 2025.
- Provides safer, utility-managed backup power.
- Reduces reliance on risky DIY setups.

Enhanced Safety & Compliance

- Reduces backfeeding incidents.
- Enhances safety for utility workers.
- Eliminates unsafe extension cords.
- Prevents makeshift wiring hazards.



Increased Customer Adoption & Satisfaction

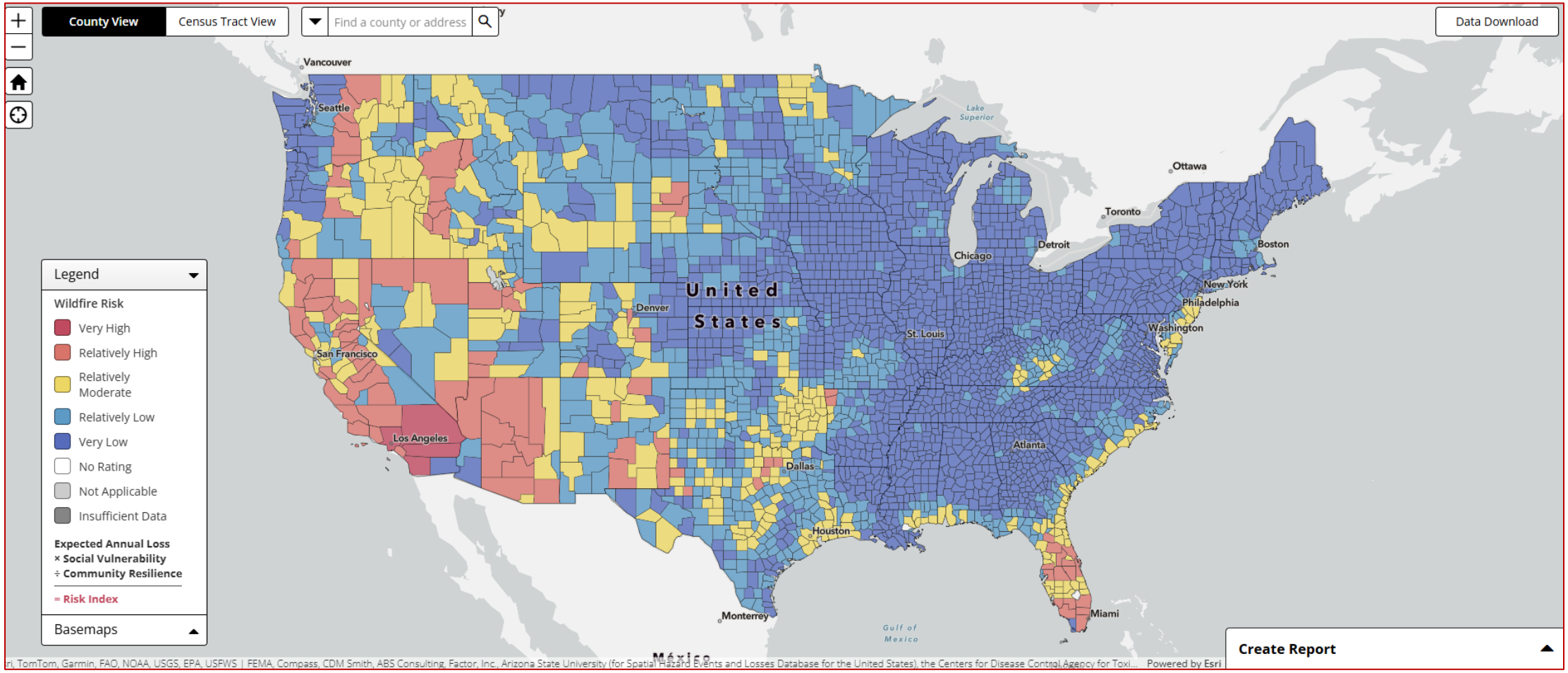
- Customers benefit from a seamless, automatic backup power transition.
- Eliminated the need for costly electrician-installed transfer switches.
- One customer noted: *“Explaining how to start my generator took longer than installing the BPTM.”*

Stronger Utility-Consumer Partnership

- PG&E oversees backup power installation and operation.
- Supports California’s grid modernization efforts.
- Scales for future DER integrations like battery storage and solar.
- Improves backup power safety, reliability, and customer satisfaction.

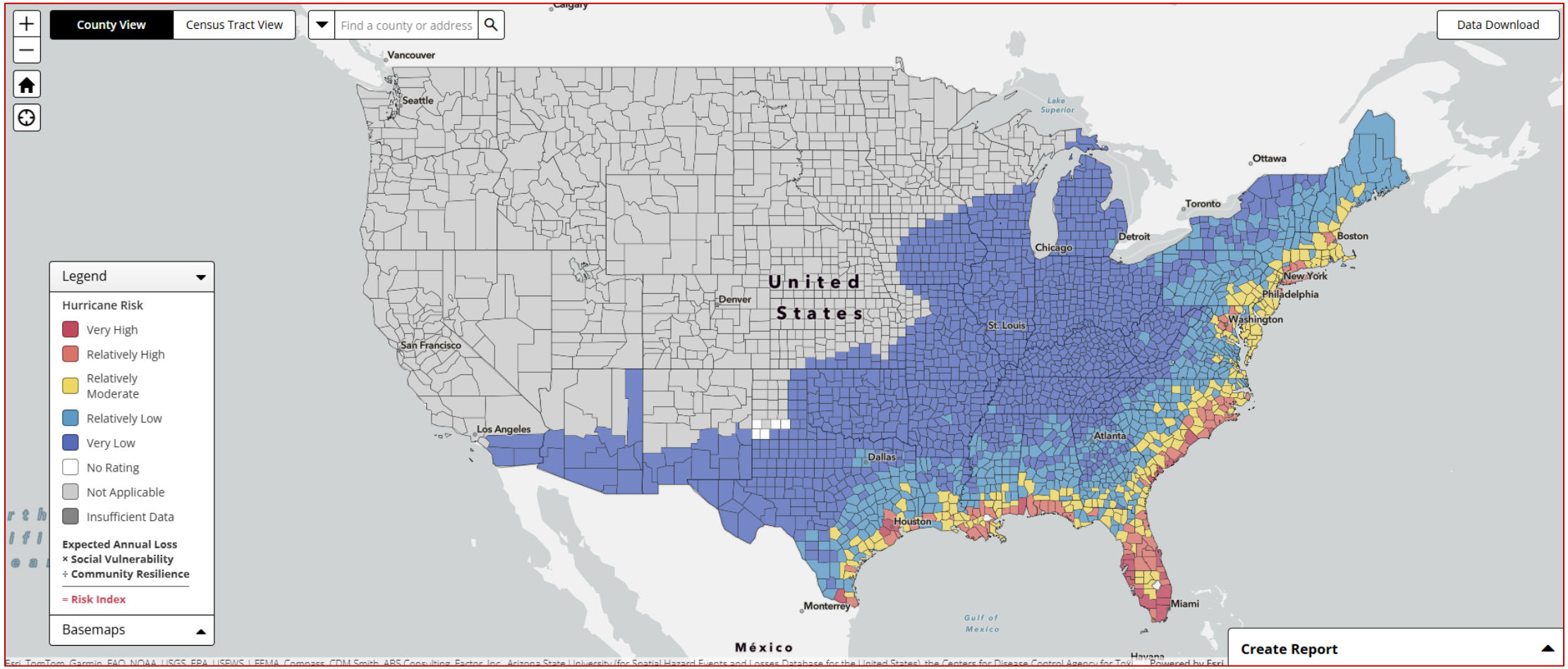
Target Use Cases

Opportunity Areas: Wildfire Risk Map

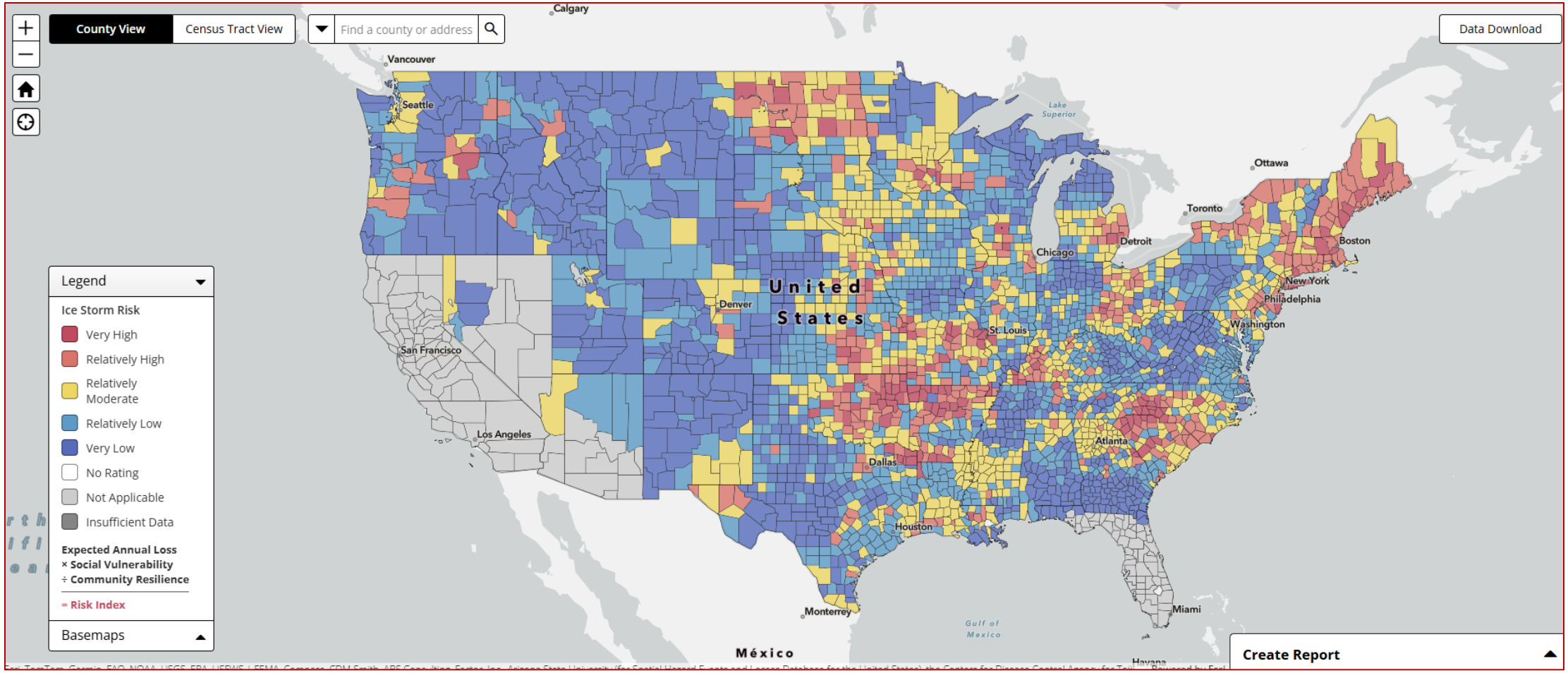


https://hazards.fema.gov/nri/map

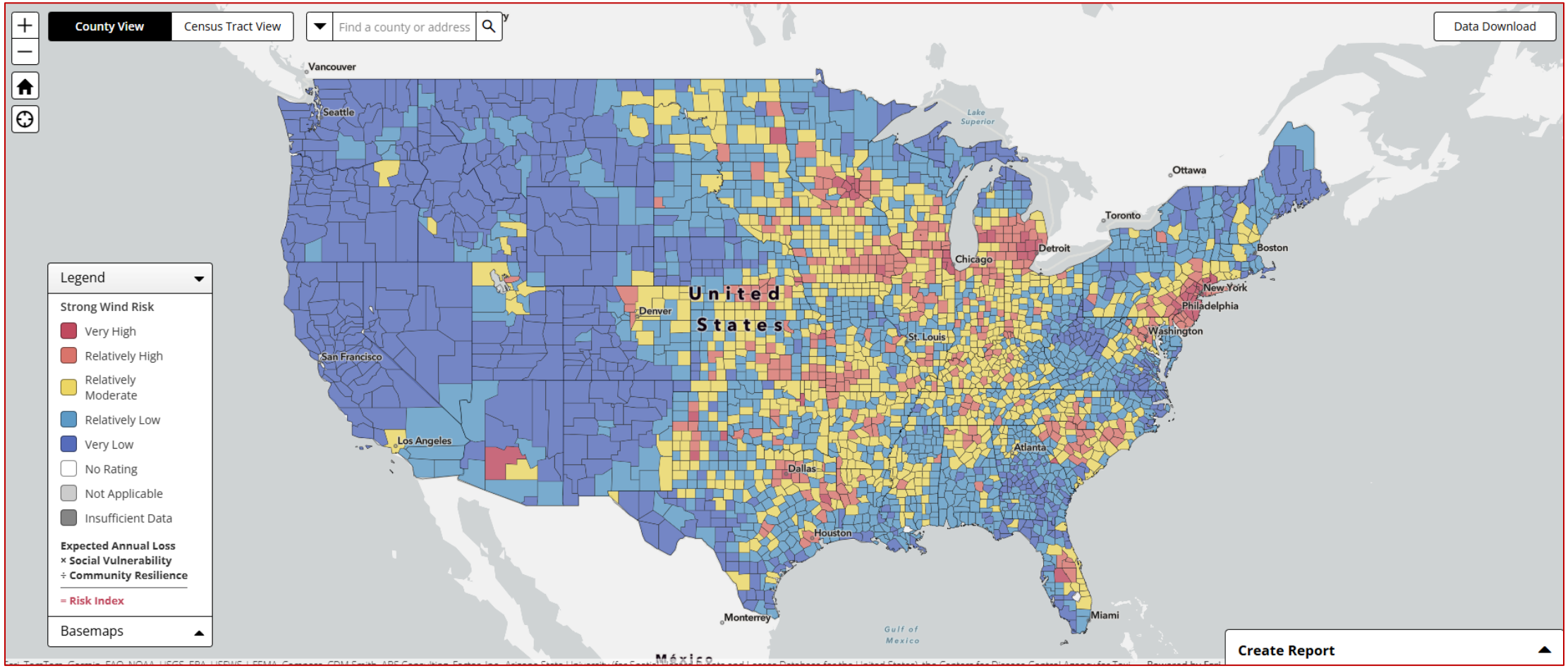
Opportunity Areas: Hurricane Risk Map



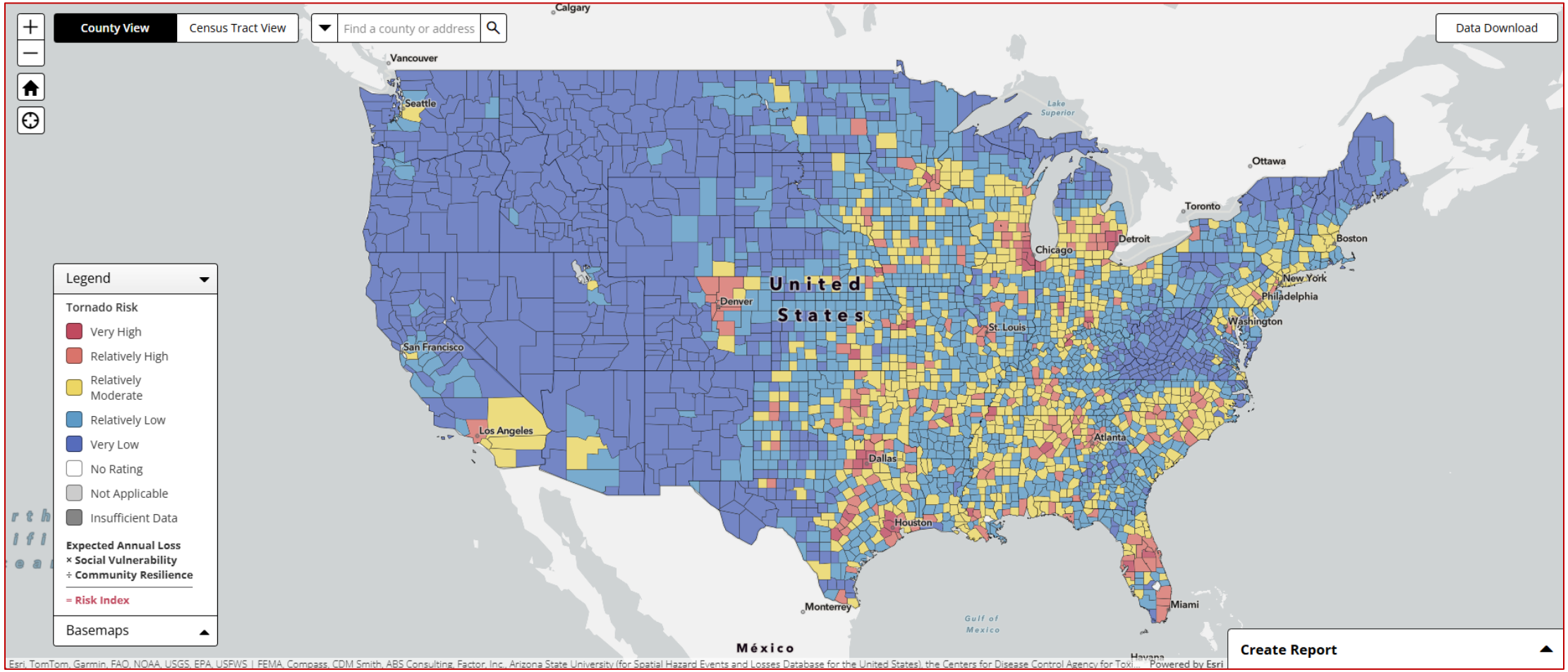
Opportunity Areas: Ice Storm Risk Map



Opportunity Areas: Strong Wind Risk Map



Opportunity Areas: Tornado Risk Map



Additional Considerations

Regulatory Compliance & Wildfire Mitigation

- Aligns with CPUC wildfire prevention mandates.
- Helps utilities reduce ignition risks.
- Supports SB 99 & AB 327 energy resilience goals.
- Ensures compliance with California's DER integration.

Energy Equity & Vulnerable Customer Support

- Supports low-income and medically vulnerable customers.
- Reduces public health risks during outages.
- Integrates with California’s SGIP program.
- Expands backup power access for disadvantaged communities.

Grid Load Balancing & Demand Response

- Prevents demand spikes by staggering power restoration.
- Reduces strain on substations during grid recovery.
- Supports future smart grid strategies.
- Enables remote monitoring and power optimization.

Scalability for EV & Battery Integration

- Supports EV-based backup power (e.g., bidirectional charging).
- Aligns with utility-backed emerging EV solutions.
- Future-ready for home battery storage integration.
- Enables renewable microgrids for resilience planning.

Conclusion

Conclusion: A Scalable Model for Other Utilities

- PG&E and TESCO's BPTM enhances backup power safety and reliability.
- Utility-managed solutions make it safer, more convenient, and cost-effective.
- Proven success demonstrates its effectiveness.
- Scalable for utilities nationwide.

TESCO METERING

Questions & Feedback?

TESCO METERING

Go Forth & Sell!