# EPIC 4 Wave 2 Public Workshop December 15, 2025



This program is funded by California utility customers under the auspices of the California Public Utilities Commission.



# Safety

### **Reminders**

1. This is a long call. Please be aware of ergonomic risks and risks associated with sitting for long periods of time.

| SAFETY CONSIDERATIONS   |  |
|---|--|
| Earthquake:  ☐ Know the safest places to duck, cover and hold, such as under sturdy desks and tables  | Active Shooter: ☐ Get out, hide out, take out ☐ Call 911, if possible  |
| Fire:  Know your exits and escape routes  | Medical Emergency:  ☐ Are you alone or is someone else present to perform first  |
| <ul> <li>□ Have a compliant fire extinguisher to be used only when safe to do so</li> <li>□ Most importantly, get out of the building and call 911</li> </ul> | aid/CPR as needed? If alone, be prepared to call 911  ☐ Do you have an AED? If so, ensure that your family or housemate knows where it is and how to use it. |



# Agenda

### **Desired Outcomes**

- 1. Attendees are aware of and understand projects that PG&E is considering to launch as the second wave of the EPIC 4 Portfolio.
- 2. Attendees have the opportunity to provide feedback on proposed projects before scoping is finalized and they are launched.

Please note that this meeting is being recorded.



# Agenda

| ITEM | SESSION  | TIME     | MINUTES | DETAILS  |
|------|--|----------|---------|--|
| 1    | Welcome and Introduction   | 10:00 AM | 10      | Safety & Introduction, Introduction to EPIC and the Strategic Objectives   |
| 2    | Create a More Nimble Grid to Maintain Reliability as CA Transitions to 100% Clean Energy   | 10:10 AM | 60      | Clean, Dispatchable Resources (2 projects) Grid Modernization (5 projects) |
| 3    | BREAK  | 11:10 AM | 5       |  |
| 4    | Increase the Value Proposition of Distributed Energy Resources to Customers & the Grid   | 11:15 AM | 20      | DER Integration & Load Flexibility (2 projects)                            |
| 5    | Inform California's Transition to an Equitable, Zero-<br>Carbon Energy System that is Climate-Resilient and<br>Meets Environmental Goals | 11:35 AM | 10      | Climate and Environment (1 project)  |
| 6    | Close  | 11:45 AM | 5       | Concluding Comments, Next Steps  |



# What is EPIC?

The Electric Program Investment Charge (EPIC) is a California statewide program that enables energy utilities and the California Energy Commission (CEC) to invest in & pursue new/novel emerging energy solutions to benefit electric ratepayers and support California's energy goals

Five guiding principles have been formally established to guide all EPIC work:

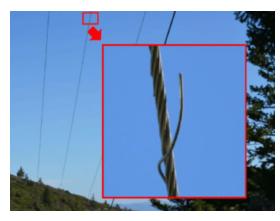
Increased Safety • Improved Affordability • Greater Reliability
Environmental Sustainability • Equity



Redwood Coast Airport Microgrid (RCAM)



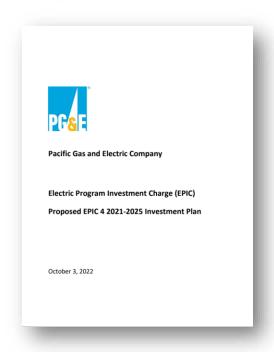
Vegetation Management Innovations



**Line Degradation Sensors** 



# **EPIC 4 Areas of Focus**







Link: <u>PG&E's Research & Development</u> Strategy Report



Link: Climate Strategy Report

- 1. Create a More Nimble Grid to Maintain Reliability as California Transitions to 100% Clean Energy
- 2. Increase the Value Proposition of Distributed Energy Resources to Customers & the Grid
- 3. Inform California's Transition to an Equitable, Zero-Carbon Energy System that is Climate-Resilient and Meets Environmental Goals



# **Context of Today's Presentations**

- On November 30, 2023, California Public Utility Commission (CPUC) approved PG&E's EPIC 4 Investment Plan. The Plan details 23 Research Topic Areas, in which PG&E can pursue technology demonstrations.
- PG&E is on track to execute ~30-35 total projects as part of EPIC 4 Portfolio.
- January 2024, PG&E subject matter experts presented 20 "Wave 1" project proposals.
- July 2025, PG&E presented 2 additional project proposals at our Annual Joint IOU Workshop
- Today, we will present an additional 11 that were selected from 30+ internal idea submissions, that went through an rigorous screening, refining and scoring process.
- Attendees have the opportunity to provide feedback on proposed projects before scoping is finalized and new EPIC projects are launched.
- This program is funded by California utility customers under the auspices of the California Public Utilities Commission.



# **Presentation Format**



10 Minutes for each project

### For Each Project Proposal:

3-5 minute project overview, Followed by audience Q&A:

Please state your name and organization when asking questions or making comments.



**Option 1:** Use Raise Hand function, and moderator will call on you and un-mute you.



Option 2: Submit written questions in the Q&A function

### For additional questions/comments for projects:

Please email <a href="mailto:Epic\_Info@pge.com">Epic\_Info@pge.com</a>.

# Create a More Nimble Grid to Maintain Reliability as California Transitions to 100% Clean Energy





# **Distribution Pole Design Automation**

# Lower costs from automation and modernization of replacement pole design and estimating

| TOPIC  | DESCRIPTION  |
|--|--|
| Concern / Gap<br>Addressed                                 | PG&E's existing design and engineering software for analyzing the structures (mainly poles) that support our electric distribution system requires manual steps that could be automated. Single pole projects (replace existing pole, add load to existing pole) represent 70% of the volume of work (50K to 80K poles annually) that comes into Electric Distribution Estimating.   |
| Solution / Technology                                      | Demonstrate a solution for PG&E's single pole replacement program, a modern, data-first, enterprise-wide 3D physics-based digital twin platform and pole design module that is properly architected to integrate with the needed data sets (e.g. photos, LiDAR) and systems (e.g. Graphics Information System or GIS, Enterprise Resource Planning or ERP).  |
| Project Objective (s)                                      | Prove that a proposed pole design toolchain can lower costs and integrate efficiently into the next generation enterprise solution.  |
| Project Description/<br>Scope of EPIC<br>Demonstration     | 1) Populate the 3D physics-based model with PG&E data sets. 2) Configure the pole design module with our design parameters. 3) Create a minimal, though sufficient, number of pole designs to compare with the current pole design tool chain, PG&E design standards, CPUC requirements, and industry best practices. 3) Analyze solution effectiveness (including cost savings potential) and construct a phased development and deployment plan. |
| Estimated Cost   | \$2M   |
| How PG&E can scale to full deployment (Path to Production) | Pole design and estimating touches numerous engineering, operations, and enterprise data sets and systems. This project will architect how the proposed solution, if proven, would deliver quicker wins (lower costs) within the current design and enterprise environment as well as the plan for integration with the next generation enterprise system implementation that is ongoing.  |
| New / Novel  | The proposed solution is emergent in the United States.  |
| Urgency  | Potentially tens of \$Ms in annual cost savings.   |
| Benefits   | Cost reduction from more efficient pole design and estimating, with the envisioned longer-term benefit of construction crews being able to auto-create designs for a subset of poles as well as being able to eliminate a subset of on-site surveys.   |



# **Advancing Procurement Operations**

# Reduce contract overhead with AI to help stabilize rates

| TOPIC  | DESCRIPTION  |
|--|--|
| Concern / Gap<br>Addressed                                 | We have a large workforce within Sourcing and other departments that support contract package development, purchase requisition processing and invoice validation. These processes can be slow, costly, and prone to human errors due to their largely manual nature.  |
| Solution / Technology                                      | An enterprise-grade, AI-powered contract intelligence and compliance automation platform for Procurement Operations. This solution will leverage the latest advances in generative AI, large language models (LLMs), and document intelligence to transform how PG&E develops contracts, and then extracts, interprets, and enforces contract terms across the entire procurement lifecycle. |
| Project Objective (s)                                      | Develop the foundational capability to digitize/make our reference documents machine readable, then demonstrate the project's three primary use cases on the minimum number of test cases to evaluate our hypothesis.  |
| Project Description / Scope of EPIC Demonstration          | <ol> <li>integrating the AI solution with procurement systems and collecting a representative set of contracts and invoices,</li> <li>training and testing extraction and validation models on hundreds of real documents,</li> <li>demonstrating the solution with sourcing teams to measure performance and gather feedback for refinement and scale-up.</li> </ol>                        |
| Estimated Cost   | \$500k for Phase 1   |
| How PG&E can scale to full deployment (Path to Production) | PG&E will scale underlying AI technology to extract document data for better decisions across more departments. The platform will include workflows and rules to keep processes consistent and connect with third-party AI tools, making it easy to build and deploy AI agents that speed up everyday tasks  |
| New / Novel  | Current manual processes scatter data across systems; our Generative AI solution extracts rules and insights from documents and integrates them into existing workflows—without replacing current systems.   |
| Urgency  | An Al-powered contract intelligence and compliance automation platform will enable PG&E execute the sourcing process faster and more resource efficiently, further reduce sourcing risk, and increase the value we get out of our ~ \$10B in annual spend.   |
| Benefits   | Cost Savings: Because PG&E spends ~\$10B in total enterprise-wide external services, even a modest efficiency gain would result in tremendous cost savings.  |



# "Megabundling" for Integrated Grid Planning

### Optimizing upfront planning for cost-efficient execution of grid upgrades

| TOPIC   | DESCRIPTION  |
|---|--|
| Concern / Gap<br>Addressed                        | PG&E is attempting to replace siloed programmatic asset investment planning processes with a coordinated approach, through an Integrated Grid Planning (IGP) process that is enabled by a robust software tool. While PG&E has begun to develop the foundations for the tool, one aspect that is sorely lacking is an advanced capability to bundle work to create cost savings across investment areas while also ensuring efficient execution of bundled projects.   |
| Solution / Technology                             | PG&E defines megabundling as a strategic approach to maintenance and infrastructure work that consolidates multiple electrical projects—especially across circuits and isolation zones—into a single, coordinated effort. This method is designed to improve efficiency, reduce costs, and enhance safety and reliability for customers. This EPIC scope would develop and demonstrate software to better execute the bundling of this work, and enable dynamic recalculation of bundled project cost and value. Lastly, the capability would provide the ability to create seamless alignment with execution and operations' needs. |
| Project Objective (s)                             | Develop and demonstrate a software product that enables the IGP process for intelligent bundling for PG&E and other utilities.   |
| Project Description / Scope of EPIC Demonstration | 1) Define requirements for bundling capability, 2) design solution with vendor, 3) build solution, 4) demonstrate across a range of bundling scenarios and MAT codes to fully test and validate functionality and value potential.   |
| Estimated Cost                                    | \$2M + vendor cost share opportunities   |
| How PG&E can scale to full deployment             | PG&E intends to scale up this technology solution by applying to a few MAT codes at a time. MAT codes are Material Activity Type that group related tasks and cost in standardized categories.   |
| New / Novel                                       | PG&E began this megabundling process earlier in 2025. Even with a manual process, PG&E demonstrated significant savings. This summer, PG&E crews completed dozens of electrical projects on the Central Coast in just two days instead of two weeks, reducing planned power outages by 50% and execution expenses by up to 20% (link).   |
| Urgency   | By automating the manual bundling process, we hypothesize this EPIEC project can increase these reliability and cost savings benefits further.   |
| Benefits  | Supports affordability by executing field work more efficiently: Perform field inspections and quality control more efficiently; Simplify invoice and scheduling processes; Reduce planned outages and execution costs; Minimize customer impact   |



# Al for Improving Customer Electrification

# **Enhanced Customer Awareness and Streamlined Planning and Estimation to Save Time and Money for Customers in Electrification Projects**

| TOPIC   | DESCRIPTION   |
|---|---|
| Concern / Gap<br>Addressed                              | Over 100,000 customers apply to PG&E for new electric interconnection or electric service modification projects annually. Today customers go through the entire application, design and pricing process to learn how much their project will cost and its technical requirements. This takes approximately 90 days and several thousand dollars in engineering and planning fees. In addition, customer electrification projects often face delays and higher costs due to complex, manual planning processes. With applications expected to more than double, we have an urgency to deliver an easier, faster, and more predictable service. |
| Solution / Technology                                   | A suite of AI-enabled technologies will significantly streamline service planning and estimating process and will provide customers with a ballpark cost estimate upfront, empowering an early and free of charge customer decision-making regarding their interconnection projects. We will conduct a deep dive on customer insights to directly inform new tools, which are expected to include a new platform using AI-driven tools to streamline intake, improve cost estimates, and automate planning—making the process faster, more accurate, and easier for customers.  |
| Project Objective (s)                                   | Deliver quicker, more predictable service connections, reduce unnecessary costs, and enhance the customer experience for electrification projects.  |
| Project Description<br>/ Scope of EPIC<br>Demonstration | Demonstrate two key innovations to improve the customer experience for electrification projects:  Al Chatbots for New Project Exploration and Application – Guides customers before and during the application process, answers questions instantly, and helps customers make informed decisions before submitting a project.  Machine Learning Cost Estimator – Provides upfront ballpark cost estimates to customers to inform their decision-making regarding electrification projects, avoid unnecessary customer expense, reduce project cancellations and close the gap between estimated and actual customer project costs.            |
| Estimated Cost  | \$2.5M  |
| Plan for scale to full deployment                       | Demonstrate in 2026–2027, then rapidly scale across PG&E's service portfolio to support California's clean energy goals.  |
| New / Novel   | First-of-its-kind integration of generative AI, machine learning, and automated planning in PG&E's service design process—bringing advanced technology to everyday customer interactions, project planning, design and pricing process.   |
| Urgency   | Customers experience pains every day with current manual processes that lead to avoidable costs, project cancellations and delays. Electrification applications are expected to more than double, creating an urgency to improve.   |



# Al for Improving Customer Electrification

# **Enhanced Customer Awareness and Streamlined Planning and Estimation to Save Time and Money for Customers in Electrification Projects**

| TOPIC    | DESCRIPTION  |
|----------|--|
| Benefits | Lower Costs: Reduce project cancellations and construction overruns, leading to more affordable utility rates  Faster Service: Shorter timelines for project approvals. Customers receive rapid information to inform electrification plans  Better Experience: Clearer upfront information for customers' electrification project decision making and smoother interconnection process for customers. |



# **Customer Digital Experience**

# Leverage new technology to enhance PG&E customer experience

| TOPIC   | DESCRIPTION  |
|---|--|
| Concern / Gap<br>Addressed                        | PG&E has insufficient digital tools today, which makes it difficult for people to understand their bills or get helpful advice about what changes could impact their electric usage. Complex rates contribute to bill shock and low customer satisfaction, while fragmented tools and communications result in people missing out on programs that could help them, and useful features like smart devices aren't being used as much as they could be.   |
| Solution / Technology                             | Unified digital engagement platform (eg. web, app, etc) powered by secure, near grid-edge data   |
| Project Objective (s)                             | Deliver consistent experiences that customers rate very highly, resulting in a net increase to NPS among active users of the new platform  |
| Project Description / Scope of EPIC Demonstration | Conduct a targeted demonstration with select residential customer segments to explore new approaches for enhancing digital engagement and energy management. Work will center on developing and evaluating methods for delivering timely, actionable insights that simplify information and support customer decision-making. The initiative will also investigate opportunities for automation and personalized recommendations. Customer insights will directly inform strategies for broader customer engagement and technology deployment. |
| Estimated Cost                                    | \$4M   |
| How PG&E can scale to full deployment             | Initial limited rollout across a couple targeted residential customer segments, then scale to all residential customers across PG&E  |
| New / Novel                                       | Leverages the best available grid-edge data and platforms, and could provide customers individualized access to PG&E programs, individual load management tools  |
| Urgency   | As electrification trends continue to expand, users will have higher desire and need to understand their energy usage.   |
| Benefits  | Improved customer satisfaction and access to information; increased customer transparency and engagement; increased customer autonomy  |



# **Real-Time Monitoring for T&D Asset Health**

# Leveraging new technology to maximize useful life of assets and save money by deferring capital maintenance on above-ground transmission and distribution (T&D) assets

| TOPIC  | DESCRIPTION   |
|--|---|
| Concern / Gap<br>Addressed                                 | A combination of aging infrastructure and increased climate risks have led to a growing need for maintenance and replacement for above-ground T&D assets.  Without careful management, prioritization of assets in high fire threat districts (HFTD) could result in growing a backlog in non-HFTD areas.   |
| Solution / Technology                                      | A combination of process continuous improvements, sensing, and predictive analytics to enable PG&E to maximize the effective useful life of above-ground T&D assets, allowing for just-in-time replacement, without increasing risks. Potential for risk reduction with enhanced sensing data.  |
| Project Objective (s)                                      | Quantify potential cost savings and develop demonstration implementation plan for the solution, beginning with wood poles.  |
| Project Description / Scope of EPIC Demonstration          | <ul> <li>Identify opportunities to enhance knowledge of asset health</li> <li>Identify opportunities to better prioritize maintenance tags for relevant assets using enhanced technology and data</li> <li>Assess options, including but not limited to sensing and predictive analytics, to realize the identified opportunities</li> <li>Create demonstration implementation plan for the chosen option(s)</li> </ul> |
| Estimated Cost   | \$4M  |
| How PG&E can scale to full deployment (Path to Production) | Any sensing and analytics solution needs to be rigorously demonstrated on a subset of above-ground T&D assets but could in time be extended across the portfolio of above-ground assets that are tagged for major maintenance or replacement. We anticipate starting with wood distribution poles and then extending to other assets.   |
| New / Novel  | Novel sensing, potentially including new capabilities associated with AMI 2.0 smart meters, coupled with predictive analytics and workflow changes to operationalize the insights from the sensing and analytics.   |
| Urgency  | Aging infrastructure and the impacts of climate change require new methods which maintain compliance with regulations while reducing costs.   |
| Benefits   | Affordability: Significant savings from deferral of or more targeted capital maintenance activities. Potential for improved safety.   |



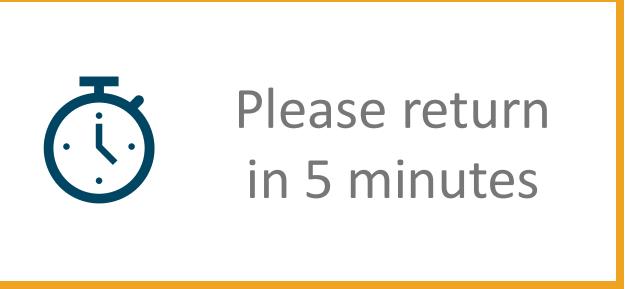
# **Residential Battery Grid Value Program**

### **Unlock Grid Value from PG&E Customer-Sited Batteries**

| TOPIC   | DESCRIPTION  |
|---|--|
| Concern / Gap<br>Addressed                              | PG&E has targeted programs to support residential battery installations among customers who need backup power, and many residential customers already have batteries with a solar system. In addition to providing energy during outages, residential batteries can be used to shift usage in support of the grid by charging mid-day when renewable energy is plentiful and discharging in the evening; however, most residential batteries are under-utilized, spending too much time sitting idle. Research shows that these batteries could deliver roughly four times more grid value with minimal impact to the battery customer.      |
| Solution /<br>Technology                                | This project will evaluate customer perspectives on delivering grid value from residential batteries and will design one or more solutions to deliver that grid value in ways which work for battery customers, continuing to provide backup power when needed while leveraging the unique ability of batteries to shift load without the customer needing to act or change how they use energy.   |
| Project Objective (s)                                   | Find the most affordable and scalable way to access the latent capability of permanent residential batteries to manage electricity demand on the grid and improve the overall flexibility and affordability of the grid.   |
| Project Description<br>/ Scope of EPIC<br>Demonstration | The project will start with the customer by exploring needs and barriers among residential customers who have, or are considering, a permanent battery. With these insights, PG&E will design a solution to access the grid value of residential batteries, seamlessly dispatching the battery to provide grid value while giving the customer confidence that the battery will meet their home needs. The solution which will be tested with a subset of existing program or tariff participants and will build on one or more existing mechanisms to communicate with batteries with functions that address the identified customer needs. |
| Estimated Cost  | \$1M   |
| How PG&E can scale to full deployment                   | If successful, PG&E could scale the solution among the several thousand participants in its existing and future battery backup programs and then the over 100k solar + storage customers on legacy tariffs which only minimally encourage charging/discharging in support of the grid. A seamless experience will be critical to scaling.  |
| New / Novel   | This project is unique in its customer-centric approach to resilience in conjunction with full grid value from residential batteries, building trust and a streamlined experience.   |
| Urgency   | Accessing the grid value potential is essential to improving the affordability of programs that support battery adoption; and recent findings show that participants in those programs face barriers to enrolling in existing programs designed to dispatch their battery and access the potential grid value of the battery, including complex enrollment processes and lack of participating aggregators.  |
| Benefits  | This solution will increase the affordability of battery backup programs for customers in areas with highest risk of outages, and at a broader scale, can create significant grid services value that would drive down rates for all customers, all without jeopardizing resiliency for the battery customer.  |







# Increase the Value Proposition of Distributed Energy Resources to Customers & the Grid





# T-Flex (Transmission Flexible Interconnection)

# Use more of the grid we have today to serve more new loads faster, securing AI and cloud business growth for CA in a way that reduces rates for all ratepayers

| TOPIC  | DESCRIPTION   |
|--|---|
| Concern / Gap<br>Addressed                                 | Transmission constraints requiring infrastructure upgrades create multi-year lead times for delivering power to new large loads like AI data centers and manufacturing. These long delays risk the loss of such businesses growing in CA communities, and the corresponding loss of funding to shared grid costs.   |
| Solution / Technology                                      | For much of the day, the grid is not used to its full capacity: if customers could be directed to reduce or offset their power usage at the right times and places, this could unlock capacity at many hours of the day and times of year, and connect those loads faster, while long term grid upgrades are built.  T-Flex offers customers 'speed to power' through an operational system for managing grid constraints on transmission by coordinating customer actions.   |
| Project Objective (s)                                      | Develop a Transmission Energy Management System (EMS) module for forecasting constraint Triggers and conveying operational Limits to participating customers, including development of the needed Planning and Operations processes.  |
| Project Description / Scope of EPIC Demonstration          | <ul><li>(1) Develop minimum viable product functionality and processes.</li><li>(2) Complete a demonstration of the new tools and processes in a lab setting</li><li>(3) Determine if and how to deploy and scale up</li></ul>  |
| Estimated Cost   | \$2.5M  |
| How PG&E can scale to full deployment (Path to Production) | This operational tool is the key piece of the puzzle for large load customers to receive speed in exchange for flexibility, using whichever solutions meet their business needs. Platform tools like this have a high degree of scalability built in but may need more new features later to reach customers facing more complex situations where they want to connect. The Operations tools will require support from Planning tools which show a customer how their flexible connection would work, including defining the details of frequency, duration, and severity of transmission constraints to be solved. |
| New / Novel  | T-Flex introduces flexible interconnection agreements to the transmission level. This is more complex than PG&E's existing Distribution FlexConnect program and would apply to larger customer facilities using more power. The result is a major shift from rigid, firm service models to adaptive, non-firm options.  |
| Urgency  | Delays to connecting large loads jeopardize PG&E's ability to serve customers who want to grow now in CA with load that could reduce rates for all ratepayers.  |
| Benefits   | Adding new large load using more of the same grid capacity spreads costs over more energy, pushing all ratepayers' costs down. New data center and manufacturing business in turn creates construction jobs, local property tax revenues, and economic growth for California communities where they build.  |



# **Optimizing Asset Utilization**

# Using the grid we already have more efficiently saves money, boosts reliability and accelerates electrification.

| TOPIC   | DESCRIPTION   |
|---|---|
| Concern / Gap<br>Addressed                              | PG&E is experiencing accelerated growth in electricity demand, necessitating substantial upgrades to its conventional infrastructure. These upgrades are expensive, time-consuming, and subject to delays, which in turn postpone load energization and beneficial load growth. At the same time, some assets on the system may be under-utilized and there is potential to do more with existing assets.   |
| Solution /<br>Technology                                | To address this, PG&E is exploring targeted strategies to improve asset utilization on select circuits, aiming to move from the current range of approximately 40–50% towards 70%-80% efficiency levels where appropriate. These approaches, supported by the methods and tools outlined below, are designed to optimize grid performance through thoughtful load reallocation while maintaining reliability and revisiting operational standards.  |
| Project Objective (s)                                   | 1) Assess the current asset utilization and standards, 2) Propose changes to standards and prove their feasibility, 3) Unlock latent capacity when and where needed to serve new and growing load, and 4) Improve the use of our assets and unlocking capabilities to integrate our customers safely, reliably and cost-effectively.  |
| Project Description<br>/ Scope of EPIC<br>Demonstration | Evaluate the data available to understand the current utilization status of assets on Transmission and Distribution and propose potential solutions (EPIC 4.08 performed a preliminary assessment). An RFP will be issued, and solution(s) will be tested with the objective of updating the standards and deploying permanent changes to grid operations.  |
| Estimated Cost  | \$1M  |
| How PG&E can scale<br>to full deployment                | This initiative establishes a clear path from insight to implementation, beginning with a comprehensive baseline assessment informed by PG&E's experts' opinions and rooted in operational data analysis to quantify current transmission and distribution asset utilization, followed by identifying and prioritizing effective solutions. The selected solution will be tested through a focused demonstration to evaluate and validate performance, scalability and claimed benefits. The results from the analysis and testing of demonstration will enable full-scale production rollout ensuring improvements in grid utilization, reliability and affordability. |
| New / Novel   | This project is unique as it relies on a comprehensive asset utilization baseline assessment based on real data and considers a suite of complementary metrics that capture temporal and locational utilization patterns rather than only looking at peak or average values. As such, the identified solutions can better address the specifics of PG&E's grid's nature.  |
| Urgency   | Energizing growing number of new customers with new infrastructure upgrades rather than tapping into any potentially under-utilized capacity causes delays and increased rate pressure for customers.   |
| Benefits  | Affordability: Increasing the throughput of energy of our existing grid supports affordability by avoiding capacity-related grid upgrades.  |

# Inform California's Transition to an Equitable, Zero-Carbon Energy System that is Climate-Resilient and Meets Environmental Goals





# Al-Enhanced Urban and WUI Fire Conflagration Risk Model

### Reduced risk to people and property from wildfires impacting urban and WUI areas

| TOPIC  | DESCRIPTION   |
|--|---|
| Concern / Gap<br>Addressed                                 | Wildfire spread simulation technology currently does not adequately estimate urban conflagration tail risk. With an effective new model, PG&E could precisely target its limited wildfire mitigation efforts in urban High Fire Theat District (HFTD) areas, thus providing the highest protective value per dollar for both people and property.   |
| Solution / Technology                                      | PG&E seeks a variety of novel approaches to combine into an ensemble of operational models. For one of the approaches we will demonstrate a physics-based airflow model that ties a digital twin of the flammable landscape dynamically updated with geospatial AI/ML and foundational computer vision models integrating data sources such as structural vulnerability, vegetation, topography, and local weather. |
| Project Objective (s)                                      | Determine whether this approach can provide what we need to help precisely target urban and wilderness-urban-interface (WUI) mitigation efforts.  |
| Project Description/<br>Scope of EPIC<br>Demonstration     | <ol> <li>Add PG&amp;E data sets to the model.</li> <li>Run simulations on select representative HFTD areas.</li> <li>Evaluate model results.</li> </ol>   |
| Estimated Cost   | \$550K  |
| How PG&E can scale to full deployment (Path to Production) | If proven, the model would be integrated into the ensemble of risk models and risk modeling operations.   |
| New / Novel  | Leveraging AI/machine learning to integrate large data sets related to complex, urban environments has newly enabled better urban wildfire conflagration modeling.  |
| Urgency  | Better understanding and reducing urban conflagration risk to people and property is a priority for PG&E.   |
| Benefits   | Potential avoidance of loss of life and damage to property.   |



# **Close & Final Questions**

Deck will be uploaded to pge.com/epic.

For additional questions/comments for these projects, please email Epic\_Info@pge.com.

Thank you!