

The grid is changing significantly, and we don't have all of the answers. EPIC, which stands for the Electric Program Investment Charge, is a dedicated R&D program for PG&E.

EPIC's been really beneficial to our team because it's given us a space to brainstorm about technology and technology problems that'll be facing our company and the industry several years from now, and consider how we can use demonstration projects to understand the technology and the problem early so that when the company does need to make a scaled resource decision, we'll have a much better understanding and can make a solid decision right out the gate.

At PG&E, safety is our highest responsibility, and that safety takes innovation. Some of our key strategic objectives include mitigating fire risk and hardening our system to ensure the safe delivery of energy, further integrating increased renewables, being able to lower our cost for our customers through new innovative approaches, and being able to leverage our data and analytics and new in different ways.

Now, with climate change affecting the environment that the grid is operated in, EPIC has definitely shifted to looking at new technologies to reduce the wildfire risk. I've been working on the Proactive Wires Down Project where we're looking to implement new technology in the substation called REFCL which stands for Rapid Earth Fault Current Limiter to limit the fault current in case a wire hits the ground or some other ground fault. This is new technology to North America. It's been used in Australia with good success. In the lab ignition test, this technology was proven in Australia to reduce the likelihood of ignition by 90%.

Data Analytics for Predictive Maintenance is a project that's looking at using real-time data, like voltage data from our smart meter system, to look at anomalies and from those anomalies, predict when a distribution asset such as a transformer might fail before you have an outage, potentially, a safety risk if the asset fails catastrophically. We're really prioritizing assets that have a higher risk of failure and specifically failure that could cause a wildfire ignition.

PG&E collects between 8 and 10 billion data points every single day. That is just a massive amount of data. The use of advanced analytics and data science is a key way that we can help push down costs by doing projects faster, better, and cheaper while still maintaining the same level of safety and reliability. And that's only possible because we are allowed to innovate and experiment and test through the EPIC program.

We're taking the learnings from EPIC-- data analytics, new methodologies of how to forecast and plan for distributed energy resources and what the impacts are on the grid. Not only will that help us meet our growing, dynamic changing needs of our customer but also positions us to meet where state policy is taking us into the future.

California has some really ambitious renewable energy goals. What EPIC has enabled us to do is to get some of these really early stage learnings on battery energy storage resources. And not only how do we implement these batteries, but how do we operate them for maximum customer value.

I recall the first time I shared with people outside of the EPIC program the credit card-sized meter. And they were shocked. And they said, we did this? PG&E? I said, yeah. We have these skills. We've developed the skills in-house. And we're just now scratching the surface in terms of how we're going to apply some of these ideas that were developed using EPIC dollars.

We talk a lot about "and." We need to be safe and reliable and affordable and clean. That's not going to happen through our traditional approaches of doing things. It's going to take innovation, and it's going to take working in a different way, and EPIC helps enable both. There's very few critical challenges we have where there is an easy answer or out-of-the-box solution. And through EPIC, it helps us to try things, fail fast, and keep working towards achieving that strategic objective.

When you have the time to breathe and think and innovate rather than just focusing on near-term deliverables, you're really able to do so much more, and that's what EPIC allows.

One of the really amazing things is that the flexibility of EPIC has allowed us to take this new situation where PG&E is facing unprecedented challenges with the recent wildfires and the impacts that they've had to the local communities and apply these new technologies, these new ways of working with data to try to address some of those greatest risks.

PG&E is committed to innovation and developing new technology, investing in a more resilient grid, and improving the customer experience as we adapt to the impacts of increased wildfire risk.

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