

Well, there is no doubt this is an exciting time. And this Innovation Summit is the brainchild of Quinn Nakayama, our R&D team, Mike Delaney. I know they're somewhere in the house. Let's just give it up to them for having the vision to bring all of us here together. So thankful.

I thought I'd kick us off with a little optimism. There's, I would say, some skepticism, I think, and maybe even a little fatigue, that maybe this whole climate change, extreme weather thing is just too hard. I think there are a lot of people who feel like we've just-- that seems too far away. It seems too hard. We're just going to solve this problem.

Well, let's pick a smaller one. I'm an optimist by nature. Those of you who know me know that. But more importantly, on this subject, I'm an optimist with science, with the science, with the engineering understanding of what is possible for the energy system of the future. What we just described here on stage is an example of how you can have a triple bottom line solution.

And I just want to fill you in on some of the-- we're going to do a little myth busting here today. I'm going to fill you in on my thoughts on what does it mean, and why does it take optimism? But I want to come back to something. In fact, John started it this morning from Distributech, talking about Asheville.

I do think to tackle any challenge, you do have to have an important why. And those of us who are Californians know that extreme weather is devastating. Those citizens in Asheville know that extreme weather is devastating. This is a problem. Our extreme weather and climate conditions that drive it to occur must be tackled, and that's our why. But I'll tell you personally what my why is.

A couple of months before I took this job, it was a regular day, Northern California up in Shasta County. And a young family was going to have breakfast for dinner. You ever do that, breakfast for dinner? Pancakes and bacon, I love that.

So dad went out to the grocery store to get the bacon, and while he was gone, a tree that we had inspected made contact with a normally operating perfect condition power line, and a wildfire ensued. Before dad could get home from the grocery store, his wife and his daughter perished in their car trying to get out.

Every day, I pin a little ladybug to my jacket. It's a simple act. But it reminds me what's at stake. And it reminds me what I'm up to and what the PG&E team is standing for. We cannot accept it's too hard. We cannot accept it can't be done. We cannot accept that let somebody else, let the next generation take care of that. We're going to take care of that. We're taking care of that. We've made extraordinary progress in our mitigations for extreme weather.

Now we need to get to the root cause and absolutely address the drivers of climate change. And so here's why I'm optimistic. There are many reasons to believe. But there are a lot of doubters. There are people who think that the fossil fuels are necessary, that essentially, you can't do it without them.

Some people think that we're just running out of power. So forget about this clean energy business. We got to build more stuff. Let's get the biggest, baddest generation equipment we can get, whatever means necessary. Maybe this green energy transition thing just is a thing of the past.

And heck, it's just too expensive. It's too expensive to build stuff in California. It's too expensive to build stuff in America. We don't even know how to do it anymore. And good god. This energy grid is rickety. You're telling us we're going to electrify? You can't even keep the lights on, Patty. I hear that all the time. That's not going to be true for long.

So here's some reasons to believe. Let's get into it. Let's get into the science, the reasons why I believe that this is absolutely possible. Start by busting the myths. Number one, we can't build stuff in California. Well, let's go back in time. We did that. You see what that is? That's the Golden Gate Bridge.

Do you know it took 15 years to permit the Golden Gate Bridge and only five years to build it? It was hard then too. There was some guy who refused to give up. He refused, and he saw it to the end. And can we imagine America without the Golden Gate Bridge? Can we imagine California without the Golden Gate Bridge? Who says infrastructure is ugly?

That thing is gorgeous. It's a beacon. And it only happened because someone was tenacious. It's our turn. We did that. This thing is the Helms Pumped Storage Facility. This is up in the Sierra National Forest. There's this beautiful Helms Canyon River. This is a 1,200-megawatt pumped storage facility, just for those of you who don't know, although I think my audience here today knows 1,200 is a big pumped storage. That's a big number.

There's two reservoirs naturally occurring when there's excess power. and now, this wasn't true when we first built it. But today, we do this twice a day. We take the water when there's extra power in the daytime, and we pump it up to the upper reservoir.

And those same motors that pump that water up the hill when we are in need of peak power at 7:00 or 8:00 PM, when the sun goes down, that same water just flows, gravity-fed. No fossil fuels, no nothing. Making clean electricity twice a day, 1200 megawatts twice a day, right here in California. We did that. That was in the '70s. It's beautiful. And we're talking about an upgrade at that plant. We're not done there. We did that.

Let's do this. Infrastructure for purpose. Now this is one of my favorite kinds of infrastructure, as many of you know. I'm a fan of undergrounding because it's more affordable. It's certainly prettier. Let's just agree to that. And it keeps people safe and energized.

Today, in some of our highest risk miles, we're not talking about undergrounding every mile of the PGA system. We're talking about 8% of the miles that are in the highest risk areas, in the most forest dense places, where that mother, that father, that daughter was going to have breakfast for dinner. They should be able to do that.

And the choice shouldn't be are they going to shut off the power? Are we going to have it safe? They should have both. And that's what modern infrastructure is all about, and it can be also beautiful. But it's not just this. It's building a dynamic grid. A dynamic and modern grid. It's building a great city, San Jose, with a decarbonized energy system that captures heat from data centers that offsets the electric load at a 4,500 new housing units. That's modern infrastructure. Let's do this. Let's do this.

Now there's another myth. You just can't substitute for fossil fuels. It seems like it's just insurmountable. But let's just see. This is the Moss Landing Steam Plant in Elkhorn. The Elkhorn Battery Storage is coming next. This is the Moss Landing Steam Plant that has connection to the transmission line.

So this is what it was. Fossil-generated power. We did that. We added solar, and we're going to do more of this. This is now the battery storage facility that's on that exact site that exists today. We need to do more of this.

This battery facility, 182 megawatts, is one of multiple battery storage facilities on that very same site that repurposed that transmission, the existing infrastructure, and made it carbon free. There's a gigawatt of battery storage. And by the way, there is plenty of energy here in California. Let's talk about that.

There's some idea that the grid can't handle it. In fact, people have come to me. Patty, aren't we out of power? Didn't we two years ago in California have an hour where there were curtailments? Well, yes, that happened in 1920. We came close in 1922. But let me tell you what's happened along that entire journey. Just last year, we added 9,500 megawatts of capacity of clean energy, fossil fuel free energy in California. We have 10 gigawatts of battery storage on the California grid. The grid can, in fact, handle it. Let me walk you through it.

Back in the day, when electricity was a new thing, believe it or not, there was a day. It was 100 years ago when it was a new idea. We had these dynamos that the whole purpose of electricity was to light our streets and for those very privileged to light their homes and replace the whale oil with this clean fuel electricity.

But what they discovered is in the daytime, there was all this extra power available because it wasn't dark. So let's come up with new ideas for electricity. Hence the streetcar. The electric streetcar was born because there was extra electricity in the middle of the day. So we did that.

And I just threw this in because we're in San Jose. This is cute. This is an advertisement about how we served the San Jose District back in the day. And it says a power for good. We had to advertise electricity because we had to convince people to sign up for it. And we were talking about electrifying our cities but also our homes, our factories, our farms. This all happened to utilize all that energy from the motors and the dynamos that were powering the street lights. Well, ironic situation.

There's some parallels today to the past. So I'm going to talk about the duck curve for just a minute. I know many people are familiar with it. I'm going to show you how the utilization of energy has changed over the last decade. So if you just orient yourself to the chart, those are units of energy on the vertical axis. The horizontal axis is time of day.

So in 2015, it looked a little bit like this. As the lights came on at the end of the day, or maybe even air conditioning, you get a little bit of a peak load in the late afternoon, and then the load would come back down, be pretty steady during the day.

Well, then we started adding more and more solar in particular. So solar has a particular availability when the sun shines. And so you get this reduction in demand on the grid during the day. So you can see when the sun comes up, you use less, but you still have that peak at night.

Well, that was 2020. Here's what it looks like in 2023. This is actually the same problem that we had back in the day, which in my mind, all problems can be solved. Let's solve this one. So we've got excess energy during the day. What do we do about that? People tell me the grid's out of power. Actually, no. The grid is utilized 45%. Because of this, we need to find a way to leverage this.

Part of the hazard of this curve is that because less units are used of electricity, but you still have to serve the peak. So your grid has to be built. Those substations, the transformers, the power plants, the transmission, the whole thing has to be built for those peak hours plus a reserve margin, and you're using less energy. The unit cost of electricity has been rising, particularly here in California.

And this is a huge driver of the increased rate and the increased cost of every unit of electricity in California, but we're not done yet. We can turn the tide on that, and we're going to turn the tide by utilizing that power. What's the best way to utilize extra power during the day? With a dynamic demand, something that runs during the day, like EVs.

We can power those EVs midday. Instead of paying Arizona to take our extra power, which is what we're doing today, we can use that extra power with our electric vehicles, with our new data centers, with electrifying our homes. The grid actually needs new demand, especially the most dynamic demand in history.

In the past, our electricity demand happened at very specific times. When the sun went down, we turned on lights. When it got hot, we turned on air conditioners. When we started the factory, the motors ran. EVs are the first dynamic demand we have ever had.

It is the best opportunity to both lower the unit cost of energy, fully utilize the grid, and decarbonize our economy. The number one source of carbon emissions nationwide and in California is transportation. And thankfully, our automakers and really inspired by Tesla have reimagined what vehicle transportation can look like in the future. It's electric, and the grid can absolutely handle that.

Here in California, we have an objective at PG&E to serve three million EVs by 2030. Today, we serve over 650,000 EVs. Santa Clara County last year, 43% of new vehicles sold were electric. 28% of new vehicles sold in my service area last year were electric. We need those electric vehicles.

We launched one of the coolest applications in Oakland earlier this year. Oakland Unified School District introduced the first bidirectional electric school bus fleet. So here's how that works. It's a perfect solution. They power up their buses overnight. Each school bus has about 80 miles of capacity. Let's just put it in miles. 80 miles of capacity.

And a typical school bus route is about 30 miles. So they go do their 30-mile route. They come back. They refill when we have lots of free power. Then they go back out, do their afternoon run, come back. They can put all that energy back on the grid at the peak when we need energy, and then do it all over again. Repower overnight when it's cheap. It's the most amazing.

And let me tell you something. I rode one of those little buses. It wasn't little. I don't know why I called it little. It was a big school bus. That's the picture. Oh, you can't see them. But there's a picture of these school buses here on this slide. I rode it, and there were two things I noticed for our children in Oakland. I couldn't be happier.

It was quiet, number one, which maybe it wouldn't be quiet with all the children on it. So that was maybe a temporary condition, but there was no rumbling of this big, loud bus, and there were no emissions. It was not smelly. Those neighborhoods are going to have cleaner air. They're going to be decarbonized, lower cost, transportation. This is the future.

And of course, the grid can handle it. Not only can the grid handle it. The grid needs it. The grid needs it. And here's at scale. Let me give you some reasons to believe at scale the numbers. Let me orient you to this chart. It's all about our triple bottom line, serving people, the planet, and prosperity.

People, fundamentally, when we decarbonize the economy, they will fundamentally use less energy. Because electricity is a more efficient fuel than gasoline, just one for one. Electricity is more efficient, and it is more affordable. So not only will they use less energy, they will spend less money.

Using electricity in lieu of gasoline, and over time, natural gas, will save customers 20% to 30% on their household energy spend. Now it's a little tricky because you get your electric bill. You just got an EV. You think, dang, my electric bill went up. Well, of course it did. You're using 50% more energy for your car.

But check your Visa bill out. And see that your gas station charges went to zero. So net and net, you are 20% to 30% better off driving the EV than the internal combustion engine. It's economically better for you. And in that pursuit, we reduce carbon emissions by 65%. This is the triple bottom line that is our future. It's the reasons to believe.

But here's the trick, team. We don't have all the solutions. It's not perfect. We don't have-- like those buses in Oakland, that works. But let me tell you, it took something. How do we scale that? How do we have a dynamic digital grid that actually can optimize the usage and flatten out that curve. That's going to take AI for sure.

We at PG&E have published our R&D report, again, the second year in a row. And last year, we had 67 problem statements. This is a little tricky what I'm about to say. We had 67 problem statements. We got 600 ideas out of this event last year. We did a pitch fest. Narrowed it to 60. We narrowed it down then further to a couple dozen that we're taking to scale.

Some of them are out in the demonstration area, out in the hall. You got to see them. It's really exciting. Real solutions to real problems. We clarified the gap from where we are today to where we want to be in the future. We need your solutions. We need your help. We need your brilliance.

I remind myself all the time and people all around me, look, we used to not have windshield wipers. You know people drove a car, and they couldn't see, and they had to pull over, and they got in an accident. Somebody fixed that. Some genius, he's a bazillionaire now, or his grandchildren are bazillionaires now.

You in the audience and online are the next windshield wiper inventor because there's a million problems from today to tomorrow. We've identified 67 of them. So we solved 17. We took 17 off the list, but we added 17 back in. So we still have 67 problems. They're just slightly different than they were last year.

So you can see our opportunities, the problems to be solved are your future to be caused and the why you can get up every day knowing you're making the world a better place. We need everyone to do all of it faster. And AI is just the engine. These data centers and electric vehicles are just what we need right when we needed it. We can make all of these pieces come together to make a brighter future.

I love this quote. The great is the one who plants the trees whose shade they may never know. Some of us will be solving problems that no one will ever know we worked on it. No one will ever know how consequential we were or what a difference that we made. But great is that one.

You can be great by taking these problems one at a time, working with us, helping us solve. Please come join us. We have a big job to do for really important reasons, and we're counting on you to help us do it. Let's do this. Thank you so much.