



Webinar

ULI San Francisco: What You Need to Know Building Electrification

Date: March 10, 2021

00:00:18 --> 00:00:22: So good afternoon everyone, my name is Michelle Malaka Fry.

00:00:22 --> 00:00:25: I'm the executive director at ULI San Francisco and we

00:00:25 --> 00:00:28: are all very excited to have you all here with

00:00:28 --> 00:00:32: us today for this fantastic discussion on building electrification,

00:00:32 --> 00:00:36: building electrification is actually one of my favorite topics.

00:00:36 --> 00:00:38: An if you don't believe me,

00:00:38 --> 00:00:40: just ask my coworkers. And so it was my great

00:00:40 --> 00:00:44: pleasure to be able to serve on the Executive Steering

00:00:44 --> 00:00:47: Committee of the Mayor of San Francisco's 0 Mission Building

00:00:47 --> 00:00:52: Task Force. Which is responsible for creating San Francisco's recent

00:00:52 --> 00:00:55: building ordinance related to electrification.

00:00:55 --> 00:00:58: So why do I think electrification is so important and

00:00:58 --> 00:00:59: so interesting?

00:00:59 --> 00:01:02: And it's really because it's essential to our transition to

00:01:02 --> 00:01:04: a clean energy economy.

00:01:04 --> 00:01:07: The state of California has committed to creating a clean

00:01:07 --> 00:01:09: electricity grid by 2045,

00:01:09 --> 00:01:12: and the Biden administration is eyeing a goal of a

00:01:12 --> 00:01:13: clean grid by 2035,

00:01:13 --> 00:01:17: but essential part of this transition is for buildings to

00:01:17 --> 00:01:19: be able to plug into this.

00:01:19 --> 00:01:21: Clean grid an be using all electricity and to get

00:01:21 --> 00:01:22: off fossil gas,

00:01:22 --> 00:01:25: so getting off fossil gas is essential to us to

00:01:25 --> 00:01:26: all of us.

00:01:26 --> 00:01:29: Meeting our climate goals, it's important to our indoor and

00:01:29 --> 00:01:33: outdoor air quality and it's important for equity because it

00:01:33 --> 00:01:35: fossil gas use doesn't impact all of us equally.

00:01:35 --> 00:01:38: We're going to be hearing all about this today from
00:01:38 --> 00:01:40: this fantastic panel.
00:01:40 --> 00:01:43: Experts that we've assembled will be hearing about big
picture
00:01:43 --> 00:01:44: things and policy,
00:01:44 --> 00:01:48: but we're also getting really hear some hands on practical
00:01:48 --> 00:01:49: experience.
00:01:49 --> 00:01:51: For you to take back and bring back to your
00:01:51 --> 00:01:53: work and to your projects.
00:01:53 --> 00:01:55: So before we get started though,
00:01:55 --> 00:01:58: we are just going to go through just a couple
00:01:58 --> 00:01:58: of things.
00:01:58 --> 00:02:00: Announcements from Ulic SF and KC.
00:02:00 --> 00:02:04: If you wouldn't mind advancing thank you the slide we'd
00:02:04 --> 00:02:07: like to start all of our programs off by thanking
00:02:07 --> 00:02:08: our sponsors or sponsors.
00:02:08 --> 00:02:10: Do you make our work possible?
00:02:10 --> 00:02:13: And if anyone would like to find out more about
00:02:13 --> 00:02:13: sponsorship,
00:02:13 --> 00:02:16: they should please let me or someone on my team
00:02:16 --> 00:02:18: now we'd be happy to give you a call and
00:02:19 --> 00:02:21: the other thing we'd like to do is encourage you
00:02:21 --> 00:02:24: to be, you lie member if you're not already.
00:02:24 --> 00:02:27: Many great benefits to being a member.
00:02:27 --> 00:02:30: In addition to discounts like on programs like this,
00:02:30 --> 00:02:34: there's the opportunity to participate on committees that
create programs
00:02:34 --> 00:02:35: like this,
00:02:35 --> 00:02:38: and if you would like to become a member,
00:02:38 --> 00:02:39: you can go to uli.org/join.
00:02:39 --> 00:02:42: And if you are already a member and know someone
00:02:42 --> 00:02:44: who should be a member,
00:02:44 --> 00:02:46: you can go to uli.org/refer.
00:02:46 --> 00:02:49: You'll get a discount and the person you refer the
00:02:49 --> 00:02:53: person you refer will get a discount and you'll get
00:02:53 --> 00:02:54: a gift card.
00:02:54 --> 00:02:57: And then one last slide I wanted to share is
00:02:57 --> 00:03:00: just a little bit of housekeeping here,
00:03:00 --> 00:03:04: so you'll notice that closed captioning is available if you
00:03:04 --> 00:03:07: click the close captioning button you will see a live
00:03:07 --> 00:03:09: transcript of this,
00:03:09 --> 00:03:12: and please forgive us if there's a little bit of

00:03:12 --> 00:03:13: a lag,
00:03:13 --> 00:03:14: or if there are some typos.
00:03:14 --> 00:03:18: Kind of how the system works.
00:03:18 --> 00:03:21: Couple other things. One, this is a zoom meeting,
00:03:21 --> 00:03:23: so we ask that you turn off your cameras and
00:03:24 --> 00:03:26: that way all the speakers will float to the top.
00:03:26 --> 00:03:29: The other thing we recommend that you do is you
00:03:29 --> 00:03:32: can pin the speakers so if you float over anyone's
00:03:32 --> 00:03:35: head you can press you see the three little dots
00:03:35 --> 00:03:38: and there you can click that and you can click
00:03:38 --> 00:03:41: pin and then all the speakers will float to the
00:03:41 --> 00:03:41: top.
00:03:41 --> 00:03:44: You'll be able to see them and we invite you
00:03:44 --> 00:03:48: to share your thoughts and comments on Twitter where
ULISF
00:03:48 --> 00:03:49: and if you have comments.
00:03:49 --> 00:03:52: For the speakers are moderate are and for speaker will
00:03:53 --> 00:03:56: be taking some of those comments towards the end,
00:03:56 --> 00:03:59: so please put those in the chat box.
00:03:59 --> 00:04:02: Alright, now with that I would like to introduce our
00:04:02 --> 00:04:03: first speaker,
00:04:03 --> 00:04:07: an Armada rater Panama bartholomy many of you may
already
00:04:07 --> 00:04:07: know him.
00:04:07 --> 00:04:10: He was a formerly a board member at the US
00:04:10 --> 00:04:11: Green Building Council.
00:04:11 --> 00:04:15: He was president of our Northern California chapter of the
00:04:15 --> 00:04:16: US Green Building Council.
00:04:16 --> 00:04:19: He was also previously, amongst other things,
00:04:19 --> 00:04:24: Deputy director of the California Energy Commission's
Efficiency and Renewables
00:04:24 --> 00:04:24: Division,
00:04:24 --> 00:04:27: and he's been an adviser to a number of our
00:04:27 --> 00:04:28: state Assembly members.
00:04:28 --> 00:04:31: But the reason why we've asked him here today?
00:04:31 --> 00:04:36: Is because he's also the director of the building
Decarbonization
00:04:36 --> 00:04:36: coalition,
00:04:36 --> 00:04:40: one of the most active organizations really helping us with
00:04:40 --> 00:04:44: this transition to all electric buildings and he is basically
00:04:44 --> 00:04:48: the go to expert on building electrification in the country.
00:04:48 --> 00:04:51: And so we are delighted to have him here.
00:04:51 --> 00:04:56: So it's my pleasure to introduce Panama bartholomy

00:04:56 --> 00:05:00: wonderful, very gracious welcome. Thank you so much.

00:05:00 --> 00:05:04: Amuli, San Francisco. It's really great to be here.

00:05:04 --> 00:05:08: Thank you to all the sponsors for sponsoring this event

00:05:08 --> 00:05:13: and for sponsoring you lie and great organization and I've

00:05:13 --> 00:05:15: been a big fan for years.

00:05:15 --> 00:05:18: I am going to get my PowerPoint started here so

00:05:18 --> 00:05:22: hopefully everybody can see it and it looks well so

00:05:22 --> 00:05:26: this is not the practical hands on portion of the

00:05:26 --> 00:05:28: agenda. I was asked to cover.

00:05:28 --> 00:05:32: Why is building electrification taking off?

00:05:32 --> 00:05:35: What are some of the policies that are being implemented

00:05:35 --> 00:05:37: within the San Francisco Bay area and then what can

00:05:37 --> 00:05:40: we expect from the state as soon as I'm done

00:05:40 --> 00:05:41: talking? After about 10 minutes,

00:05:41 --> 00:05:44: we're going to hop over to the practical hands on

00:05:44 --> 00:05:47: part of the conversation with some of the experts in

00:05:47 --> 00:05:47: the field.

00:05:47 --> 00:05:50: Ask them a few questions and then allow time for

00:05:50 --> 00:05:52: you to ask some of them questions.

00:05:52 --> 00:05:54: So that's what we have going ahead of us for

00:05:54 --> 00:05:55: the next few minutes.

00:05:55 --> 00:05:59: Our organization that building decarbonization coalition is a

00:05:59 --> 00:06:01: coalition of

00:06:01 --> 00:06:06: utilities like Pacific Gas and Electric.

00:06:06 --> 00:06:10: Manufacturers of heating equipment. The designing

00:06:10 --> 00:06:12: construction community,

00:06:12 --> 00:06:15: local governments and NGOs, all working together to

00:06:15 --> 00:06:17: eliminate emissions

00:06:17 --> 00:06:19: from the built environment.

00:06:19 --> 00:06:22: So just first of all on the big picture is

00:06:22 --> 00:06:24: you know what is building electrification.

00:06:24 --> 00:06:27: Just to really simplify it,

00:06:27 --> 00:06:30: it's taking some of the major end uses within our

00:06:30 --> 00:06:35: buildings that traditionally use gas,

00:06:35 --> 00:06:37: space heating, water heating, cooking,

00:06:37 --> 00:06:39: clothes drying and transitioning those over to electricity.

00:06:39 --> 00:06:42: And why? Electricity? Well, electricity is getting increasingly

00:06:42 --> 00:06:47: cleaner all

00:06:47 --> 00:06:50: across the United States.

00:06:50 --> 00:06:53: This is a map you see on the screen of

00:06:53 --> 00:06:56: all of the states that have adopted what are called

00:06:56 --> 00:06:59: renewable portfolio standards or renewable electricity

00:06:59 --> 00:07:02: standards where they have

00:06:47 --> 00:06:50: put in law and requirement that the grid and the
00:06:50 --> 00:06:54: providers of electricity on the grid are getting cleaner over
00:06:54 --> 00:06:58: time to reach a certain cleanliness point by a certain
00:06:58 --> 00:07:01: date. For California, we're trying to get completely 100%
00:07:01 --> 00:07:04: carbon free electricity by 2045 and you can see a
00:07:04 --> 00:07:08: number of other states across the country are all trying
00:07:08 --> 00:07:08: to get.
00:07:08 --> 00:07:13: The cleaner electricity. So what building electrification really
is is
00:07:13 --> 00:07:17: it's taking that clean electricity they're produced on the grid
00:07:17 --> 00:07:20: or produced on the building and combining it with really
00:07:20 --> 00:07:23: highly efficient technology like heat pumps,
00:07:23 --> 00:07:27: heat pump, water heaters and magnetic induction cooking to
power
00:07:27 --> 00:07:32: a building completely from that cleaner and cleaner
electricity.
00:07:32 --> 00:07:33: And so you might ask,
00:07:33 --> 00:07:35: well, what's so wrong about gas?
00:07:35 --> 00:07:37: And I'm not going to spend a lot of time
00:07:37 --> 00:07:38: on this,
00:07:38 --> 00:07:41: because ultimately I think most of you are probably interested
00:07:41 --> 00:07:43: in what does it mean for me,
00:07:43 --> 00:07:46: and ultimately this is some of the underlying information
that's
00:07:47 --> 00:07:48: really driving policy,
00:07:48 --> 00:07:51: and I'd rather spend the time on the policy 'cause
00:07:51 --> 00:07:53: the policy is or what it really going to impact
00:07:53 --> 00:07:54: you and your work.
00:07:54 --> 00:07:57: But just in short, right now gas is the fastest
00:07:57 --> 00:07:59: growing climate pollutant in the world.
00:07:59 --> 00:08:02: We're doing great work on power plants on industry and
00:08:02 --> 00:08:03: on.
00:08:03 --> 00:08:06: Vehicles were not doing as good to work on natural
00:08:06 --> 00:08:06: gas,
00:08:06 --> 00:08:10: and so natural gas is now the leading contributor to
00:08:10 --> 00:08:12: climate change.
00:08:12 --> 00:08:15: Hum, we've done great work on reducing pollution from
power
00:08:15 --> 00:08:16: plants and cars,
00:08:16 --> 00:08:19: but those same advanced pollution controls we haven't put
on
00:08:19 --> 00:08:22: appliances and buildings and so right now in the Bay
00:08:22 --> 00:08:22: Area.

00:08:22 --> 00:08:26: Our buildings are actually producing more smog from the natural

00:08:26 --> 00:08:26: gas,

00:08:26 --> 00:08:29: so we burn in the buildings and all of the

00:08:29 --> 00:08:31: cars that are commuting in and around the Bay Area.

00:08:31 --> 00:08:33: We can build buildings we can build,

00:08:33 --> 00:08:38: particularly residential buildings, cheaper when they're building all electric,

00:08:38 --> 00:08:41: then with gas, and so we're actually seeing a situation

00:08:41 --> 00:08:43: where if we want to be lowering the cost of

00:08:44 --> 00:08:45: housing in California.

00:08:45 --> 00:08:47: Building all electric is a key way to do it,

00:08:47 --> 00:08:50: and we have an incredibly old pipeline system.

00:08:50 --> 00:08:53: In California we have a big decision point coming soon,

00:08:53 --> 00:08:56: as are we going to be replacing a gas system

00:08:56 --> 00:08:59: that runs all over California?

00:08:59 --> 00:09:01: Most 2/3 of the pipe is over 50 years old

00:09:01 --> 00:09:03: and nearing the end of its useful life,

00:09:03 --> 00:09:05: and we have a big decision to make.

00:09:05 --> 00:09:08: Are we going to be investing the billions of dollars

00:09:08 --> 00:09:09: into two energy systems?

00:09:09 --> 00:09:12: Are gas system, air, electricity system,

00:09:12 --> 00:09:15: or really focusing on getting the electricity system going and

00:09:15 --> 00:09:18: stable so we can rely on that into the future.

00:09:18 --> 00:09:20: And then lastly, if any city or the state of

00:09:20 --> 00:09:23: California is going to achieve its climate goals is going

00:09:23 --> 00:09:26: to have to eliminate gas and so it's really For

00:09:26 --> 00:09:29: these reasons that we're starting to see the policy is

00:09:29 --> 00:09:30: being adopted.

00:09:30 --> 00:09:32: Across the state and in many cities,

00:09:32 --> 00:09:35: Berkeley was the first one to really take action on

00:09:35 --> 00:09:38: this in California back in July of 2019,

00:09:38 --> 00:09:41: they became the first city in the nation to say

00:09:41 --> 00:09:44: no more new gas in any buildings that are built

00:09:44 --> 00:09:46: within the city of Berkeley.

00:09:46 --> 00:09:49: The fourth person to testify at that City Council meeting

00:09:49 --> 00:09:52: was daring climb from Pacific gas and Electric,

00:09:52 --> 00:09:54: and Aaron stood up and said,

00:09:54 --> 00:09:57: PG knees here to support Berkeley and any other city

00:09:57 --> 00:10:00: in our territory that wants to help us stop the

00:10:00 --> 00:10:02: expansion of our gas network.

00:10:02 --> 00:10:05: We recognize in an expanding gas network does not fit

00:10:05 --> 00:10:09: in where California is going on climate change and we
00:10:09 --> 00:10:11: do not feel that our rate payers are going to
00:10:11 --> 00:10:15: be able to afford the gas system into the future
00:10:15 --> 00:10:18: and therefore we encourage you to stop expanding the gas
00:10:18 --> 00:10:19: system.
00:10:19 --> 00:10:22: So when you think about one of your key partners,
00:10:22 --> 00:10:25: an expansion and development being your utility utility is
00:10:26 --> 00:10:29: sending
00:10:29 --> 00:10:32: a very clear message within the Bay Area and across
00:10:32 --> 00:10:36: their territory that they do not want to be building
00:10:36 --> 00:10:36: out and providing gas to any new construction within their
00:10:36 --> 00:10:40: territory.
00:10:40 --> 00:10:43: Since Berkeley 41 other cities across California have
00:10:43 --> 00:10:46: adopted either
00:10:46 --> 00:10:49: a gas ban or similar restrictions to make it very
00:10:49 --> 00:10:49: hard to build with gas within their territory,
00:10:49 --> 00:10:52: you see a heavy concentration of them in the Bay
00:10:52 --> 00:10:53: Area,
00:10:53 --> 00:10:56: but we're starting to see it expand to other parts
00:10:56 --> 00:10:58: of the state,
00:10:58 --> 00:11:01: and this looks like San Diego is going to try
00:11:01 --> 00:11:04: to move forward by the end of the year and
00:11:04 --> 00:11:07: a number of cities in LA County as well.
00:11:07 --> 00:11:09: We have about 60 more cities that are looking about
00:11:09 --> 00:11:11: adopting these local policies moving forward.
00:11:11 --> 00:11:14: The ones in the Bay Area I was asked to
00:11:14 --> 00:11:15: give some generalities about them.
00:11:15 --> 00:11:19: What I would say is most of the ones adopted
00:11:19 --> 00:11:22: across the Bay Area,
00:11:22 --> 00:11:25: our whole building approaches so they say overall we want
00:11:25 --> 00:11:29: the entire building to be all electric rather than focusing
00:11:29 --> 00:11:32: on a specific end use like water heating or space
00:11:32 --> 00:11:33: heating, and many of them cover all building types and
00:11:33 --> 00:11:36: the majors and the large cities within the Bay Area
00:11:36 --> 00:11:39: such as San Francisco,
00:11:39 --> 00:11:41: Oakland, San Jose, cover all building types.
00:11:41 --> 00:11:44: Some of them, particularly in Silicon Valley.
00:11:44 --> 00:11:46: Did exempt certain building types,
00:11:46 --> 00:11:48: restaurants and life sciences were two of the areas that
00:11:48 --> 00:11:52: were heavily exempted at the coalition.
00:11:52 --> 00:11:55: We track all of these and we have a fantastic
00:11:55 --> 00:11:58: spreadsheet that lays out the differences between each and
00:11:58 --> 00:12:01: every

00:11:52 --> 00:11:53: one of these codes.

00:11:53 --> 00:11:55: You can see it on the website that you see

00:11:55 --> 00:11:56: on the screen,

00:11:56 --> 00:11:59: but and I'm sure this will be sent around afterwards

00:11:59 --> 00:12:00: for you to see that,

00:12:00 --> 00:12:02: but we track each and every one of these,

00:12:02 --> 00:12:06: but in general this is what we're seeing from the

00:12:06 --> 00:12:09: Bay Area codes that are going to be affecting your

00:12:09 --> 00:12:09: work.

00:12:09 --> 00:12:12: What we're starting to see now is a movement,

00:12:12 --> 00:12:14: or is how do we start to deal with existing

00:12:14 --> 00:12:16: buildings for existing buildings?

00:12:16 --> 00:12:19: It's not Even so much of a building issue as

00:12:19 --> 00:12:21: much as it's an appliance issue,

00:12:21 --> 00:12:23: and So what we're seeing is a Bay Area Air

00:12:23 --> 00:12:27: Quality Management District has announced that they're

00:12:27 --> 00:12:30: going to be

00:12:27 --> 00:12:30: looking to adopt Ultra low NOx or zero nitrogen oxide

00:12:30 --> 00:12:33: standards for water heaters and furnaces before the end of

00:12:34 --> 00:12:34: the year,

00:12:34 --> 00:12:37: and so all those codes I mentioned are going to

00:12:37 --> 00:12:38: handle new construction.

00:12:38 --> 00:12:42: The regulations at the Bay Area Air Quality Management

00:12:42 --> 00:12:45: District.

00:12:42 --> 00:12:45: And the South Coast Air Quality Management District in LA

00:12:45 --> 00:12:48: are going to be looking at are going to be

00:12:48 --> 00:12:51: about when your systems die and when your water heating

00:12:51 --> 00:12:53: and space conditioning systems die.

00:12:53 --> 00:12:56: These regulations will then affect what kind of replacement

00:12:56 --> 00:12:59: you're

00:12:56 --> 00:12:59: going to be able to put into your building.

00:12:59 --> 00:13:01: So highly recommend you watch back mode this year at

00:13:01 --> 00:13:02: the state level.

00:13:02 --> 00:13:05: There's a really clear message is coming down from the

00:13:05 --> 00:13:08: state about where the states going back in 2018,

00:13:08 --> 00:13:11: the Energy Commission and their Seminole policy report on

00:13:12 --> 00:13:13: energy

00:13:12 --> 00:13:13: said that is very clear.

00:13:13 --> 00:13:16: That building electrification as a pathway the state needs to

00:13:17 --> 00:13:19: go down in order to decarbonize's building stock,

00:13:19 --> 00:13:23: and then, in 2019, the California Public Utilities Commission

00:13:24 --> 00:13:25: opened

00:13:24 --> 00:13:25: up a brand new proceeding.

00:13:25 --> 00:13:27: Looking at the future of gas.

00:13:27 --> 00:13:29: And at the time Commissioner Liane Randolph,

00:13:29 --> 00:13:32: who opened that proceeding, wrote this op Ed,

00:13:32 --> 00:13:34: you see, on the screen where she said,

00:13:34 --> 00:13:37: it is clear that California is going to have to

00:13:37 --> 00:13:39: transition off of gas,

00:13:39 --> 00:13:42: and this is a proceeding where we will be discussing

00:13:42 --> 00:13:44: how the state is stops the use of gas.

00:13:44 --> 00:13:47: Within its territory.

00:13:47 --> 00:13:49: We're starting to see some of the first policies come

00:13:49 --> 00:13:52: out of the state of California in the building code,

00:13:52 --> 00:13:53: so I talked about with.

00:13:53 --> 00:13:56: The locals are going on the building code I'm going

00:13:56 --> 00:13:59: to finish up just briefly talking about what the state

00:13:59 --> 00:14:00: is doing on the building code.

00:14:00 --> 00:14:03: They're going to adopt A new building code that will

00:14:03 --> 00:14:04: go into effect January 1st,

00:14:04 --> 00:14:07: 2023, but it's called the 2022 Building Code in August

00:14:07 --> 00:14:08: of this year,

00:14:08 --> 00:14:10: and then it gives him 18 months to implement it,

00:14:10 --> 00:14:12: and so here's what we're seeing.

00:14:12 --> 00:14:13: I know not a lot of you build the low

00:14:14 --> 00:14:15: rise residential and nonresidential,

00:14:15 --> 00:14:17: but for the first time ever,

00:14:17 --> 00:14:19: a state is recommending that heat pumps be required.

00:14:19 --> 00:14:21: Part of a building code.

00:14:21 --> 00:14:24: They're going to require one of the major end uses.

00:14:24 --> 00:14:26: Water heating or space heating for new construction.

00:14:26 --> 00:14:29: Be a heat pump. They're going to recognize the inherent

00:14:29 --> 00:14:32: pollution dangers of cooking with gas in the code and

00:14:32 --> 00:14:34: require higher ventilation standards.

00:14:34 --> 00:14:37: If you build a house with a gas stove compared

00:14:37 --> 00:14:38: to an electric stove,

00:14:38 --> 00:14:41: they're going to require even if you don't put in

00:14:41 --> 00:14:44: electric appliances that you have that you have prewired and

00:14:44 --> 00:14:46: provided space for electric appliances.

00:14:46 --> 00:14:48: So when your gas appliance dies,

00:14:48 --> 00:14:50: it'll be all set up and ready to go.

00:14:50 --> 00:14:54: And they're going to give additional energy modeling points

00:14:55 --> 00:14:57: available

00:14:55 --> 00:14:57: if you build an all electric building.

00:14:57 --> 00:15:00: For multi family, which I'm sure a lot of you

00:15:00 --> 00:15:01: do build multifamily,
 00:15:01 --> 00:15:04: they're going to be requiring for all single zone space
 00:15:04 --> 00:15:05: heating systems.
 00:15:05 --> 00:15:08: So yeah, individual you know apartments that have a single
 00:15:08 --> 00:15:11: heater isn't connected to a central system.
 00:15:11 --> 00:15:13: Those are going to have to be all electric.
 00:15:13 --> 00:15:16: They're going to allow and make it easier to build
 00:15:16 --> 00:15:18: with central heat pump water heating systems.
 00:15:18 --> 00:15:22: They're going to have the same kind of electric readiness
 00:15:22 --> 00:15:24: and battery storage requirements,
 00:15:24 --> 00:15:27: except for water heating, and then have those same higher
 00:15:27 --> 00:15:29: ventilation standards for cooking.
 00:15:29 --> 00:15:32: For the non red side is a much lighter touch
 00:15:32 --> 00:15:34: because so many of the central systems are a bit
 00:15:35 --> 00:15:36: harder racial here,
 00:15:36 --> 00:15:39: but from some of our speakers and so they're going
 00:15:39 --> 00:15:42: to be requiring again for single zone space heating.
 00:15:42 --> 00:15:45: Those systems will have to be all electric except for
 00:15:45 --> 00:15:46: restaurants,
 00:15:46 --> 00:15:48: hotels, motels and medical facilities.
 00:15:48 --> 00:15:51: For small schools or requirement for heat pump water
 heaters
 00:15:51 --> 00:15:54: and then there's going to be for the first time
 00:15:54 --> 00:15:55: ever in any code.
 00:15:55 --> 00:15:59: Photovoltaic and battery requirements for for non residential.
 00:15:59 --> 00:16:03: Buildings in California. So this is the future that you
 00:16:03 --> 00:16:06: all are really going to have to consider up here
 00:16:06 --> 00:16:09: and this part of the screen you're starting to see
 00:16:09 --> 00:16:14: policy's climate policy's and economic building electrification
 that's going to
 00:16:14 --> 00:16:18: be reducing the throughput for gas reducing gas demand an
 00:16:18 --> 00:16:20: when you're reducing gas demand,
 00:16:20 --> 00:16:23: and taking people off of the gas grid.
 00:16:23 --> 00:16:26: What that results in is less customers to pay for
 00:16:26 --> 00:16:28: the fixed costs of that system.
 00:16:28 --> 00:16:31: And so that's going to lead to higher gas rates.
 00:16:31 --> 00:16:34: As we're starting to replace the gas system that will
 00:16:34 --> 00:16:37: create further rate pressure on on gas on the gas
 00:16:37 --> 00:16:38: customers,
 00:16:38 --> 00:16:41: which makes it even more economic than to electrify.
 00:16:41 --> 00:16:43: Which means more people will get off the grid,
 00:16:43 --> 00:16:46: which will then reduce demand on the gas grid and

00:16:46 --> 00:16:49: you can start to begin to see the downward spiral
00:16:49 --> 00:16:51: of the gas system in California.
00:16:51 --> 00:16:54: And this is what PG talks about about not being
00:16:54 --> 00:16:56: able to afford the gas system in the future.
00:16:56 --> 00:17:00: So the question is, is where are your portfolios and
00:17:00 --> 00:17:02: where are you taking your customers?
00:17:02 --> 00:17:04: In this journey, are you at the front end of
00:17:04 --> 00:17:07: this story where you're getting people out of this game
00:17:07 --> 00:17:08: before it gets bad?
00:17:08 --> 00:17:10: Or are you going to be left behind and be
00:17:10 --> 00:17:13: some of the people holding the pipe at the end
00:17:13 --> 00:17:14: of the journey?
00:17:14 --> 00:17:16: So thank you for the time today.
00:17:16 --> 00:17:19: This is our website buildingdecarb.org and I'm really excited
to
00:17:19 --> 00:17:22: now stop and take you over to our fantastic group
00:17:22 --> 00:17:22: of speakers.
00:17:22 --> 00:17:25: So I'm going to stop sharing.
00:17:25 --> 00:17:29: And introduce you to our speakers today.
00:17:29 --> 00:17:32: So we have a fantastic group really.
00:17:32 --> 00:17:35: I would say it's kind of like the like.
00:17:35 --> 00:17:37: A whole group of like the doctor,
00:17:37 --> 00:17:41: foul cheese of building decarbonization is kind of like like
00:17:41 --> 00:17:45: the Harry and Meghan's of building performance and if it's
00:17:45 --> 00:17:46: almost like more,
00:17:46 --> 00:17:50: more exciting than getting a vaccine is hearing from these
00:17:50 --> 00:17:54: folks who are about to lay their knowledge on us.
00:17:54 --> 00:17:56: So let me first introduce Sarah Neff.
00:17:56 --> 00:18:02: She's a senior vice president of sustainability at Kilroy Realty
00:18:02 --> 00:18:03: Corporation.
00:18:03 --> 00:18:08: At Kilroy she oversees all sustainability initiatives such as
implementation
00:18:08 --> 00:18:10: of energy and water efficiency,
00:18:10 --> 00:18:15: projects, recycling, green cleaning, LEED certifications,
00:18:15 --> 00:18:18: EV's done it all. She's a fantastic hang at conferences
00:18:19 --> 00:18:22: so Sarah Neff is going to be talking to us
00:18:22 --> 00:18:24: as one of our commercial folks,
00:18:24 --> 00:18:26: Rushi Shah. She has just a just.
00:18:26 --> 00:18:31: Actually each of these first three speakers have like an
00:18:31 --> 00:18:32: entire alphabet.
00:18:32 --> 00:18:35: Certifications behind their name in Russia is definitely one of
00:18:36 --> 00:18:36: them.
00:18:36 --> 00:18:40: She's a senior sustainability manager for the Tenderloin

Neighborhood Development Corporation,
 one of the largest affordable housing developers in San Francisco,
 and she oversees about three and a half million square feet of space and a sustainability program that oversees all of them.
 She, too, is in charge of energy, water, carbon reduction, waste diversion, and she leads decarbonization and sustainable design efforts at the Tenderloin Neighborhood Development Corporation.
 So thank you for joining us.
 She, Megan, Gunther again the alphabet behind early day PBD&C
 well April well AP.
 I mean, all of it.
 Megan leads the building decarbonization building performance group for AEI San Francisco office.
 Ann is a mechanical engineer with expertise, an analysis, engineering and design of mechanical systems, supporting laboratories, health care, and higher education laboratories, health care and higher education.
 So Megan only works on the most difficult of building types.
 Nothing using nothing is like a square warehouse for Megan. This is like the complicated stuff she leaves.
 Decarbonization and sustainable design efforts and provide support for all electric new developments.
 And rehab projects. And last but not least, we have the the boy on the on the panel.
 We have Barry Hooper the winner only.
 He's a green building coordinator at San Francisco and Department of Environment where he manages implementation of the city's building performance, labeling energy audit requirements for commercial buildings.
 He's a department lead for San Francisco's Green Building code for new construction and provides Technical Support to the

00:20:10 --> 00:20:11: Department
of Building Inspection.

00:20:11 --> 00:20:15: Probably the least favorite part of his job.

00:20:15 --> 00:20:18: He has previously worked as the Green Building and energy
00:20:18 --> 00:20:19: coordinator,
00:20:19 --> 00:20:20: the city of San Jose,
00:20:20 --> 00:20:23: and is the Energy Commissioner for the County of Santa
00:20:23 --> 00:20:24: Cruz.

00:20:24 --> 00:20:26: I have no idea how you were able to do
00:20:26 --> 00:20:27: that and be an employee,
00:20:27 --> 00:20:29: but good job when you bury.
00:20:29 --> 00:20:31: So that's who we're going to hear from just a
00:20:31 --> 00:20:32: fantastic group.

00:20:32 --> 00:20:35: I'm going to start off with some questions for Sarah
00:20:35 --> 00:20:36: or commercial developer.
00:20:36 --> 00:20:38: If you could unmute yourself.
00:20:38 --> 00:20:40: Thank you, Sarah, welcome you.
00:20:40 --> 00:20:43: Let's go. You're down in LA though.
00:20:43 --> 00:20:47: So you electrify commercial buildings right?
00:20:47 --> 00:20:51: The deal, fantastic. How is that been?
00:20:51 --> 00:20:54: What challenges have come up as you started down this
00:20:54 --> 00:20:56: journey of electrification?
00:20:56 --> 00:21:00: And why is killroy going down the journey of electrification?
00:21:00 --> 00:21:02: Well, Panama told us too,
00:21:02 --> 00:21:06: so we felt like we had to know.
00:21:06 --> 00:21:08: So we see that we we see the writing on
00:21:08 --> 00:21:09: the wall.
00:21:09 --> 00:21:12: So Kilroy declared that it was going to achieve carbon
00:21:12 --> 00:21:14: neutral operations by the end of 2020,
00:21:14 --> 00:21:15: which is a goal we achieved.
00:21:15 --> 00:21:18: But we also see that we can get the electric
00:21:18 --> 00:21:18: grid 20%
00:21:18 --> 00:21:21: renewables and we cannot get the gas grid 200%
00:21:21 --> 00:21:25: renewable. So therefore we need to use a lot less
00:21:25 --> 00:21:25: gas.
00:21:25 --> 00:21:28: So we started going all after construction.
00:21:28 --> 00:21:31: I think three years ago.
00:21:31 --> 00:21:32: And what we found is,
00:21:32 --> 00:21:35: you know, like anything with new construction when you bake
00:21:35 --> 00:21:37: it in these things are not hard,
00:21:37 --> 00:21:39: especially in an office space.
00:21:39 --> 00:21:41: You know there's some words the wise in terms of

00:21:41 --> 00:21:42: you know,
00:21:42 --> 00:21:44: saying OK, we're going to let Rick Warren Shell if
00:21:44 --> 00:21:47: attendant really really wants to run a gas line later
00:21:47 --> 00:21:48: to run a small,
00:21:48 --> 00:21:49: you know food thing fine,
00:21:49 --> 00:21:52: not great, but they're using their TI allowance for it.
00:21:52 --> 00:21:55: And then at least we're not using all this gas
00:21:55 --> 00:21:56: to heat and cool the building.
00:21:56 --> 00:21:59: And that way the leasing team feels a little more
00:21:59 --> 00:22:00: comfortable.
00:22:00 --> 00:22:02: So we've actually, you know,
00:22:02 --> 00:22:04: it's one of these things where I think the bark
00:22:04 --> 00:22:06: is so much worse than the bite.
00:22:06 --> 00:22:09: I think there's a lot of fear about electrification when
00:22:09 --> 00:22:10: you actually go into it.
00:22:10 --> 00:22:11: Run it. It's it's not.
00:22:11 --> 00:22:12: It's just not that bad.
00:22:12 --> 00:22:14: You know we've had some struggles,
00:22:14 --> 00:22:16: which I think a lot of people on this call
00:22:16 --> 00:22:17: know about.
00:22:17 --> 00:22:19: We had some Title 24 compliance issues where when you
00:22:20 --> 00:22:22: run the model with a mixture of building,
00:22:22 --> 00:22:24: it passes runner model with an electric building.
00:22:24 --> 00:22:26: Little bit of a Gray area,
00:22:26 --> 00:22:28: a lot of people are aware of this problem.
00:22:28 --> 00:22:30: I'm not the only one to experience it for working.
00:22:30 --> 00:22:33: Through it you know that can be challenging.
00:22:33 --> 00:22:36: We have had a small you know issue where the
00:22:37 --> 00:22:42: electric building footprint is slightly larger than the mechanical
footprint.
00:22:42 --> 00:22:45: Not a huge deal, but not a change you want.
00:22:45 --> 00:22:49: You know, in the middle of the design drawings again,
00:22:49 --> 00:22:51: something just needs to be baked in.
00:22:51 --> 00:22:55: Right now, you know we have depending on time of
00:22:55 --> 00:22:58: year and and what prices are the cost issue in
00:22:58 --> 00:23:01: terms of operations is is a little.
00:23:01 --> 00:23:02: I would stay up in the air,
00:23:02 --> 00:23:03: but we we see where we we,
00:23:03 --> 00:23:06: we we believe we see where this is going and
00:23:06 --> 00:23:08: so we're OK with that we're OK we believe that
00:23:08 --> 00:23:11: we are so sort of proactive and energy efficiency and
00:23:11 --> 00:23:14: development that we're able to say you know what we're

00:23:14 --> 00:23:15: going to do with it.
 00:23:15 --> 00:23:18: We're going to overall give a better value to our
 00:23:18 --> 00:23:21: tenants in terms of a lower cost for utilities.
 00:23:21 --> 00:23:24: I'm in the major place for struggling as these these
 00:23:24 --> 00:23:25: pesky existing buildings.
 00:23:25 --> 00:23:29: Certainly ripping gas lines out of an existing building is
 00:23:29 --> 00:23:31: a whole different kettle of fish,
 00:23:31 --> 00:23:32: so I'll say in new construction,
 00:23:32 --> 00:23:37: specially in office, we're really dealing with a lot more.
 00:23:37 --> 00:23:41: I can come discomfort with something you rather than
 00:23:41 --> 00:23:42: problems
 00:23:42 --> 00:23:44: that are really real.
 00:23:44 --> 00:23:47: These things can get on.
 00:23:47 --> 00:23:48: I'm sure Megan, who's actually mechanical engineer,
 00:23:48 --> 00:23:51: can get this a lot faster,
 00:23:51 --> 00:23:53: but the issues are not as as difficult,
 00:23:53 --> 00:23:55: but just as recently as this past was,
 00:23:55 --> 00:23:58: you know, less than a few months ago I was
 00:23:58 --> 00:24:01: leading at least threaten said alright guys.
 00:24:01 --> 00:24:02: And the other thing they be done with this lead
 00:24:02 --> 00:24:05: scorecard.
 00:24:05 --> 00:24:07: Disability needs to electric and everybody went can.
 00:24:07 --> 00:24:09: Oh my gosh, it's gonna be this whole thing.
 00:24:09 --> 00:24:11: I don't. Oh my gosh,
 00:24:11 --> 00:24:13: and you know I'm getting all these emails like you've
 00:24:13 --> 00:24:15: caused a lot of conversations internally.
 00:24:15 --> 00:24:16: I don't think we can do this and this isn't
 00:24:16 --> 00:24:18: going to happen.
 00:24:18 --> 00:24:20: I called him as I always do like Panama and
 00:24:20 --> 00:24:22: we have to go talk to these people and then
 00:24:22 --> 00:24:23: they stop responding to my emails,
 00:24:23 --> 00:24:25: which is always a concern.
 00:24:25 --> 00:24:26: And then you know, a couple weeks later I was
 00:24:26 --> 00:24:29: like hey,
 00:24:29 --> 00:24:30: if we. Figured out this electric building thing and they're
 00:24:30 --> 00:24:32: like,
 00:24:32 --> 00:24:33: oh, actually, when we ran the numbers it was totally
 00:24:33 --> 00:24:35: fine.
 00:24:35 --> 00:24:37: So the reason we haven't even back as we just
 00:24:37 --> 00:24:38: did did that thing you wanted.
 00:24:38 --> 00:24:41: That's fine. The real issue is this.
 00:24:41 --> 00:24:44: You know. Whatever landscape, pavers or some such thing.

00:24:41 --> 00:24:44: So as one of these things where in the room,
 00:24:44 --> 00:24:45: if I had said like no if they if I
 00:24:45 --> 00:24:48: just take a no for an answer though this seems
 00:24:48 --> 00:24:49: harder than like,
 00:24:49 --> 00:24:51: OK no problem and then it would have gotten mixed
 00:24:51 --> 00:24:52: fuel forever.
 00:24:52 --> 00:24:54: But I was like I kind of don't want it
 00:24:54 --> 00:24:56: to be mixed field doesn't need it.
 00:24:56 --> 00:24:58: And then people actually ran the numbers.
 00:24:58 --> 00:24:59: And it turned out to be OK.
 00:24:59 --> 00:25:01: So I think we just need a little bit of
 00:25:01 --> 00:25:02: push right now,
 00:25:02 --> 00:25:05: but at least in my asset classes these things are
 00:25:05 --> 00:25:05: not hard.
 00:25:05 --> 00:25:08: I think people in retail we're going to have to
 00:25:08 --> 00:25:10: get used to some induction cooking and maybe some cost
 00:25:10 --> 00:25:11: for equipment there.
 00:25:11 --> 00:25:15: And obviously residential. Everybody loves their induction
 00:25:15 --> 00:25:17: stoves,
 00:25:17 --> 00:25:18: but it's a thing that we're going to have to
 00:25:18 --> 00:25:20: get over,
 00:25:20 --> 00:25:22: but I think as soon as we get there is
 00:25:22 --> 00:25:25: going to be fine and I will only say is
 00:25:25 --> 00:25:27: the end of this anecdote that my husband for figuring
 00:25:27 --> 00:25:28: out how to needing to replace our stove has finally
 00:25:28 --> 00:25:30: agreed.
 00:25:30 --> 00:25:33: We won't get another gas stove.
 00:25:33 --> 00:25:33: He's actually OS most enough of the Kool Aid on
 00:25:33 --> 00:25:36: this one.
 00:25:36 --> 00:25:39: And we're also going to be walking the walk,
 00:25:39 --> 00:25:42: so I'm excited. I think that I think the barriers
 00:25:42 --> 00:25:44: are less than they seem in commercial,
 00:25:44 --> 00:25:45: and with that I'll turn it back to the home
 00:25:45 --> 00:25:47: and great,
 00:25:47 --> 00:25:50: I got one more question for you,
 00:25:50 --> 00:25:51: Sir. You mentioned cost briefly and it's always a silly
 00:25:51 --> 00:25:54: questions,
 00:25:54 --> 00:25:57: like how much does a building cost to build,
 00:25:57 --> 00:25:59: but but in general, what are you seeing on cost?
 00:25:59 --> 00:26:02: Both new construction and operational and?
 00:26:02 --> 00:26:05: Trends are building all electric.
 00:26:05 --> 00:26:05: Yeah, sure I can. I can provide sort of two

00:26:05 --> 00:26:07: ways of looking at so.
 00:26:07 --> 00:26:10: I had a billion a billion dollar development.
 00:26:10 --> 00:26:13: OK and this development was in this big right.
 00:26:13 --> 00:26:16: It's 2,000,000 square feet, city block,
 00:26:16 --> 00:26:20: whatever and we and it's obviously something like that gets
 00:26:21 --> 00:26:23: designed for years and years.
 00:26:23 --> 00:26:26: And we made this decision to go all electric in
 00:26:26 --> 00:26:27: San Francisco.
 00:26:29 --> 00:26:33: We were in a late DDS like the design was
 00:26:33 --> 00:26:34: pretty baked.
 00:26:34 --> 00:26:40: Answer for that billion dollar project going all electric was
 00:26:40 --> 00:26:41: a \$1,000,000 ad.
 00:26:41 --> 00:26:43: So that and that was,
 00:26:43 --> 00:26:45: and it would have been a \$0.00 out if we
 00:26:45 --> 00:26:46: done it three years prior.
 00:26:46 --> 00:26:48: If it had been on our radar.
 00:26:48 --> 00:26:50: So for a billion dollar project,
 00:26:50 --> 00:26:54: \$1,000,000 AD, which incidentally we were able to actually
 entirely
 00:26:54 --> 00:26:57: clear by switching from a grey water to black water
 00:26:57 --> 00:26:57: system,
 00:26:57 --> 00:26:59: canceled it out. So there is,
 00:26:59 --> 00:27:01: you know. So this whole net thing.
 00:27:01 --> 00:27:03: So Sarah got everything she wanted.
 00:27:03 --> 00:27:06: I got black water and electric for no additional cost
 00:27:06 --> 00:27:07: so that all worked out fine.
 00:27:07 --> 00:27:09: So that that again was doing it late,
 00:27:09 --> 00:27:11: right? So if you did it early,
 00:27:11 --> 00:27:15: like? For this project I was just talking about where
 00:27:15 --> 00:27:17: we talked about it in the shower at no cost
 00:27:17 --> 00:27:18: at all,
 00:27:18 --> 00:27:21: right? The performer was fine when you have to start
 00:27:21 --> 00:27:25: redesigning things and then operationally it's a wash.
 00:27:25 --> 00:27:28: The building I'm sitting in happens to use gas,
 00:27:28 --> 00:27:30: but it's twin building which we built.
 00:27:30 --> 00:27:33: Both of them doesn't, and so I'm actually able to
 00:27:33 --> 00:27:35: see what costs are like.
 00:27:35 --> 00:27:37: It kind of depends on the year.
 00:27:37 --> 00:27:40: So so this year during kovid because the electricity was
 00:27:40 --> 00:27:41: down,
 00:27:41 --> 00:27:43: we still were heating the building.
 00:27:43 --> 00:27:46: You know, costs of the gas building was more,

00:27:46 --> 00:27:47: but I've been regularly here.

00:27:47 --> 00:27:51: It's usually not so, because gas took a larger percentage

00:27:51 --> 00:27:52: of the energy use.

00:27:52 --> 00:27:54: So like I said, like it,

00:27:54 --> 00:27:55: it can depend on energies,

00:27:55 --> 00:27:58: like in what the mix and what's happening,

00:27:58 --> 00:28:01: but it's not. It's not always a slam dunk operationally.

00:28:01 --> 00:28:05: Every year currently, and we're just OK with that.

00:28:05 --> 00:28:08: Great and you're you're putting like you're better employees

00:28:09 --> 00:28:10: in

00:28:09 --> 00:28:10: the all electric building,

00:28:10 --> 00:28:13: right? Yes, in the sense that more employees are all

00:28:13 --> 00:28:14: in this building,

00:28:14 --> 00:28:18: but gyms in the other building so you know.

00:28:18 --> 00:28:20: Sarah will come back to you with questions from the

00:28:20 --> 00:28:21: audience.

00:28:21 --> 00:28:26: Ruching well? Thank you you just heard Sarah and what

00:28:26 --> 00:28:29: she deals with on the commercial side,

00:28:29 --> 00:28:32: you're building all over San Francisco.

00:28:32 --> 00:28:37: You're building multifamily. You know what different

00:28:37 --> 00:28:40: considerations or challenges

00:28:37 --> 00:28:40: are using in building all electric,

00:28:40 --> 00:28:44: then what Sara described and what are maybe some other

00:28:44 --> 00:28:47: unique you think to the multifamily sector?

00:28:47 --> 00:28:51: Absolutely yeah. Some other things are pretty much the

00:28:51 --> 00:28:55: same,

00:28:51 --> 00:28:55: with caveats that we build affordable housing,

00:28:55 --> 00:28:57: so we have to keep in mind the tenants we

00:28:57 --> 00:28:58: serve,

00:28:58 --> 00:29:02: their costs and our costs of operating these assets an

00:29:02 --> 00:29:04: we are long term owners and operators.

00:29:04 --> 00:29:08: We have buildings that we are managing for over 3040

00:29:08 --> 00:29:08: years,

00:29:08 --> 00:29:10: so like servicing and keeping.

00:29:10 --> 00:29:15: We had renovations aside but on new construction we

00:29:15 --> 00:29:19: started

00:29:15 --> 00:29:19: doing all electric three years or maybe living.

00:29:19 --> 00:29:22: More than that, before the code came in and we

00:29:22 --> 00:29:25: were part of various task force and sort of giving

00:29:25 --> 00:29:26: our feedback.

00:29:26 --> 00:29:30: Really from our perspective, not only cost but we are

00:29:30 --> 00:29:34: seeing this as a risk mitigation strategy to know combustion

00:29:34 --> 00:29:35: in buildings.

00:29:35 --> 00:29:37: Maintenance issues really going down,
 00:29:37 --> 00:29:41: and it's an opportunity for us to save our operating
 00:29:41 --> 00:29:44: costs as I think you had mentioned to heat pumps
 00:29:44 --> 00:29:48: are just so way much more efficient that we shouldn't
 00:29:48 --> 00:29:50: even argue about like a 60%
 00:29:50 --> 00:29:53: efficient gas boiler, right? So we looked at all these
 00:29:54 --> 00:29:57: factors Ann for multifamily affordable housing.
 00:29:57 --> 00:29:59: I think it just makes sense,
 00:29:59 --> 00:30:02: but to Sarah's point again from get go though we
 00:30:02 --> 00:30:05: have had some instances where in CDs DDS we have
 00:30:05 --> 00:30:06: made the switch.
 00:30:06 --> 00:30:09: But just for everyone to know the baseline for us
 00:30:09 --> 00:30:13: is different in our older buildings only two things are
 00:30:13 --> 00:30:14: running on gas.
 00:30:14 --> 00:30:17: It's the DSW and gas dryers for laundry.
 00:30:17 --> 00:30:21: We had already electrified the other things way before all
 00:30:21 --> 00:30:23: the all electric concept came in.
 00:30:23 --> 00:30:25: From a risk and cost perspective.
 00:30:25 --> 00:30:28: So then we just needed to think about DSW heat
 00:30:28 --> 00:30:31: pumps and I'm happy to sort of go a little
 00:30:31 --> 00:30:32: bit in cost.
 00:30:32 --> 00:30:36: If people are interested at a relatively small building code
 00:30:36 --> 00:30:38: and five units if we just look at line item
 00:30:38 --> 00:30:39: by line item.
 00:30:39 --> 00:30:42: Of course heat pump is going to cost more.
 00:30:42 --> 00:30:45: The difference was more than I think 100 and \$5000
 00:30:45 --> 00:30:46: or something.
 00:30:46 --> 00:30:49: But when we looked at it from a budget perspective
 00:30:49 --> 00:30:53: because we heard the owners and we have to look
 00:30:53 --> 00:30:53: at.
 00:30:53 --> 00:30:57: Different aspects, the cost that we're saving by not worrying
 00:30:57 --> 00:30:58: about gas meters,
 00:30:58 --> 00:31:03: gas infrastructure. Dealing with two utilities and sort of
 00:31:03 --> 00:31:04: different
 00:31:03 --> 00:31:04: departments RPMS.
 00:31:04 --> 00:31:06: Actually, we're happy that. Oh no,
 00:31:06 --> 00:31:08: I don't have to worry about gas,
 00:31:08 --> 00:31:11: so it didn't pan out pretty well.
 00:31:11 --> 00:31:13: And we have right now 10 buildings,
 00:31:13 --> 00:31:15: all electric in design and development,
 00:31:15 --> 00:31:19: different phases, so FD in affordable housing can do it.
 00:31:19 --> 00:31:22: I think most of you can do too.

00:31:22 --> 00:31:27: Yeah, let's fantastic how about existing buildings and your existing

00:31:27 --> 00:31:29: portfolio and electrification?

00:31:29 --> 00:31:33: And what are you finding with trying to electrify existing

00:31:33 --> 00:31:34: buildings?

00:31:34 --> 00:31:37: That's that's a beast. I'm going to admit to that

00:31:37 --> 00:31:40: it's given the portfolio we have.

00:31:40 --> 00:31:44: We have some really historic old buildings with such limited

00:31:44 --> 00:31:45: electrical capacities,

00:31:45 --> 00:31:48: so there are strategies energy efficiency.

00:31:48 --> 00:31:51: First, we want to see how much we can reduce

00:31:51 --> 00:31:55: total load before even thinking about heat pumps.

00:31:55 --> 00:31:56: We have two right now.

00:31:56 --> 00:32:00: Large multifamily project that got completed last year where we

00:32:00 --> 00:32:04: just electrified DSW piece because from a cost and again,

00:32:04 --> 00:32:08: carbon emissions perspective. We see that as number one and

00:32:08 --> 00:32:12: then space heating and other things that might be on

00:32:12 --> 00:32:14: gas as a second option,

00:32:14 --> 00:32:17: but we are targeting in our portfolio as we do.

00:32:17 --> 00:32:20: We have then we are planning for that DSW as

00:32:20 --> 00:32:21: number one use case,

00:32:21 --> 00:32:25: though capacity was a big issue cost there too because

00:32:25 --> 00:32:27: it's not new money,

00:32:27 --> 00:32:31: its operating budget. So there we are leveraging programs at

00:32:31 --> 00:32:32: SFE Round Live web,

00:32:32 --> 00:32:37: another rebate programs to offset or upfront costs.

00:32:37 --> 00:32:39: Fantastic.

00:32:39 --> 00:32:40: How has it been working with P.

00:32:40 --> 00:32:43: Jeannie and I said in my presentation that P Jeannie's

00:32:43 --> 00:32:46: been very supportive or wants to be supportive,

00:32:46 --> 00:32:48: but are they actually carrying it out as far as

00:32:48 --> 00:32:52: transformer sizing and making sure the infrastructure that is there

00:32:52 --> 00:32:53: for your projects?

00:32:53 --> 00:32:54: Yeah, it is a mix.

00:32:54 --> 00:32:56: It depends on the project too.

00:32:56 --> 00:32:58: We are in tenderloin, on on,

00:32:58 --> 00:33:00: sort of a special part of the grid.

00:33:00 --> 00:33:04: It's called secondary network where we are not allowed to

00:33:04 --> 00:33:06: export any PV back to the grid.

00:33:06 --> 00:33:09: So let's say if I put heat pump I'm increasing

00:33:09 --> 00:33:12: my electric load on the building and I need more
00:33:12 --> 00:33:15: PvP offset but with PG and E is that the
00:33:15 --> 00:33:18: issue where we always have to figure out on this
00:33:18 --> 00:33:19: building?
00:33:19 --> 00:33:20: Will it make sense or not?
00:33:20 --> 00:33:22: So that's an ongoing issue.
00:33:22 --> 00:33:25: And on every project it's different.
00:33:25 --> 00:33:28: From program perspective, I think it's great right?
00:33:28 --> 00:33:31: We are in San Francisco where we have CCS.
00:33:31 --> 00:33:33: We can source more clean power,
00:33:33 --> 00:33:36: so that's that's a big win for us.
00:33:36 --> 00:33:40: But the other challenge is the program that we leverage.
00:33:40 --> 00:33:42: Only a few are incentivizing heat pumps,
00:33:42 --> 00:33:45: so I think if you want to walk the talk
00:33:45 --> 00:33:47: and say no gas boiler,
00:33:47 --> 00:33:49: let's just stop incentivizing them right?
00:33:49 --> 00:33:52: So that's what I'm advocating for.
00:33:52 --> 00:33:54: Yeah, and just one last question,
00:33:54 --> 00:33:57: will she know what what does it mean to use
00:33:57 --> 00:33:59: a central heat pump water heating system?
00:33:59 --> 00:34:02: So folks that haven't done central heat pump water is
00:34:02 --> 00:34:05: like what are some of the design considerations need to
00:34:05 --> 00:34:06: be thinking about?
00:34:06 --> 00:34:09: You know, building in the city like San Francisco or
00:34:09 --> 00:34:10: spaces,
00:34:10 --> 00:34:12: space is limited.
00:34:12 --> 00:34:15: Yeah I think for new construction and becomes very easy
00:34:15 --> 00:34:19: because they're factoring everything from get go.
00:34:19 --> 00:34:22: But on my 2 projects the rehab once we did
00:34:22 --> 00:34:24: get into this issue of noise,
00:34:24 --> 00:34:28: the decibel levels were pretty high where we were ventilating
00:34:28 --> 00:34:29: the cold air,
00:34:29 --> 00:34:32: so we had to do some mitigation measures there and
00:34:32 --> 00:34:34: we had to work with city,
00:34:34 --> 00:34:38: so space ventilation. Those are things that we really need
00:34:38 --> 00:34:40: to figure out and you need to have a good
00:34:40 --> 00:34:42: me P team and engineers.
00:34:42 --> 00:34:44: You sort of think through that.
00:34:44 --> 00:34:48: Otherwise it can be a flop in existing buildings to
00:34:48 --> 00:34:50: go through that effort and then realize,
00:34:50 --> 00:34:55: Oh my God, we created ten other problems because of
00:34:55 --> 00:34:56: a heat pump.

00:34:56 --> 00:35:00: Great thank you. Fascinating well can't wait to learn more
00:35:00 --> 00:35:02: about your projects which are working.
00:35:02 --> 00:35:05: Thank you Richie Megan with the most I don't know
00:35:06 --> 00:35:07: what's more difficult.
00:35:07 --> 00:35:10: Your types of projects or the types of tenants you
00:35:10 --> 00:35:12: have on those projects,
00:35:12 --> 00:35:14: but thank you for joining us.
00:35:14 --> 00:35:17: So when you're looking at life sciences and labs and
00:35:17 --> 00:35:19: healthcare buildings,
00:35:19 --> 00:35:24: what are some of the unique challenges to electrifying those
00:35:24 --> 00:35:24: buildings?
00:35:24 --> 00:35:26: So I think lab buildings.
00:35:26 --> 00:35:30: I'll start with those and it's similar in health care
00:35:30 --> 00:35:34: is that were unique in that the ventilation rates that
00:35:34 --> 00:35:37: we need to supply to these spaces are much higher
00:35:37 --> 00:35:42: than residential and commercial. So we're just supplying
ventilation air
00:35:42 --> 00:35:46: for the occupants and commercial and residential spaces in
life
00:35:46 --> 00:35:47: sciences.
00:35:47 --> 00:35:50: We have to actually supply more than that to make
00:35:50 --> 00:35:54: up air for our exhaust needs or air change rates.
00:35:54 --> 00:35:57: Certain lab types are requiring a lot of.
00:35:57 --> 00:35:59: Outside air to be brought in an not only just
00:35:59 --> 00:36:02: air change rates a lot of outside air,
00:36:02 --> 00:36:04: so fully 100% not conditioned air.
00:36:04 --> 00:36:07: So because of that we see much higher reheating loads
00:36:07 --> 00:36:08: in buildings.
00:36:08 --> 00:36:11: I can't tell you how many times I've been in
00:36:11 --> 00:36:14: a meeting with clients and you show them your energy
00:36:14 --> 00:36:17: pie chart an were in Northern California where it's of
00:36:17 --> 00:36:20: relatively mild climate. Yet 40%
00:36:20 --> 00:36:23: of our building energy use actually goes to space heating,
00:36:23 --> 00:36:27: which is usually really shocking to owners that don't have
00:36:27 --> 00:36:28: a full grasp on.
00:36:28 --> 00:36:30: What lab energies it is so?
00:36:30 --> 00:36:33: Because of these high ventilation rates we have a very
00:36:33 --> 00:36:38: high building heating load which makes it much more
disproportionate
00:36:38 --> 00:36:39: for our building type.
00:36:39 --> 00:36:43: To really go to that electrified space feeding route.
00:36:43 --> 00:36:46: So Ras is relatively simple for commercial you see much
00:36:46 --> 00:36:50: larger equipment impacts when we look at life sciences,

00:36:50 --> 00:36:53: so I know we've talked a lot about heat pumps.

00:36:53 --> 00:36:57: Typically the standard heat pump that most are familiar with

00:36:57 --> 00:36:58: is an air source heat pump,

00:36:58 --> 00:37:02: so you're grabbing. Heat from your air and turning that

00:37:02 --> 00:37:05: into either hot water or you know your space heating

00:37:05 --> 00:37:08: in your building and if we tried to do that

00:37:08 --> 00:37:12: with lab buildings, oftentimes we run into space constraints.

00:37:12 --> 00:37:15: Lab buildings inherently have very packed roof spaces to begin

00:37:16 --> 00:37:16: with.

00:37:16 --> 00:37:18: We have a lot of laboratory exhaust fans.

00:37:18 --> 00:37:22: We usually have much larger air handling units and so

00:37:22 --> 00:37:24: our real estate already is pretty limited.

00:37:24 --> 00:37:28: To add any more equipment other than the chillers and

00:37:28 --> 00:37:30: boilers that we presently have,

00:37:30 --> 00:37:33: so that's one. Issue and challenge with lab buildings and

00:37:33 --> 00:37:34: healthcare.

00:37:34 --> 00:37:37: The other challenge, and I think is a bit of

00:37:37 --> 00:37:40: confusion point for some people is this idea that our

00:37:40 --> 00:37:44: transformer sizes all of a sudden going to explode and

00:37:44 --> 00:37:48: it's going to get 3X larger because we're electrifying our

00:37:48 --> 00:37:48: space eating,

00:37:48 --> 00:37:52: but it's important to point out that usually you're building

00:37:52 --> 00:37:56: infrastructure on the electrical side is sized for your cooling

00:37:56 --> 00:37:58: demand on that building,

00:37:58 --> 00:38:00: so you already are starting with a.

00:38:00 --> 00:38:04: Relatively high cooling demand and all of your lights,

00:38:04 --> 00:38:06: your plug loads, your fans.

00:38:06 --> 00:38:09: All of those are already electric and uses anyways,

00:38:09 --> 00:38:12: and so by transitioning our heating over to electrical,

00:38:12 --> 00:38:16: you're usually not having your peak heating demand at the

00:38:16 --> 00:38:19: same time as your peak cooling demand.

00:38:19 --> 00:38:23: Therefore we have some flexibility and what are our electrical

00:38:23 --> 00:38:24: service sizes,

00:38:24 --> 00:38:26: which may seem like a challenge,

00:38:26 --> 00:38:29: but it really isn't in the grand scheme of things,

00:38:29 --> 00:38:31: and I think another issue of course is.

00:38:31 --> 00:38:36: The process loads that come with laboratories and

00:38:36 --> 00:38:39: healthcare steam

00:38:36 --> 00:38:39: loads that stands to be a very challenging annuus actually

00:38:39 --> 00:38:40: to electrify.

00:38:40 --> 00:38:43: Still, depending on your tenants needs,

00:38:43 --> 00:38:45: it's a bit of a mixed bag when you are
00:38:45 --> 00:38:47: doing a core and shell design,
00:38:47 --> 00:38:50: you don't know who the end tenant will be at
00:38:50 --> 00:38:51: that time.
00:38:51 --> 00:38:53: So kind of to Sarah's point.
00:38:53 --> 00:38:56: We are seeing the same trend and the life sciences
00:38:56 --> 00:39:00: developer realm where we're designing the corn shells all
electric
00:39:00 --> 00:39:04: and then later on if the building owners decide to
00:39:04 --> 00:39:06: let the tenants bring natural gas.
00:39:06 --> 00:39:07: And that can be done.
00:39:07 --> 00:39:11: And we do see some pretty sharp efficiency declines when
00:39:11 --> 00:39:13: we try to electrify or steam.
00:39:13 --> 00:39:16: Just because the technology isn't there yet.
00:39:16 --> 00:39:19: I think you know, as we are seeing this move
00:39:19 --> 00:39:22: to all electric building design,
00:39:22 --> 00:39:26: we will see the manufacturers for steam generation finding
new
00:39:26 --> 00:39:30: ways to make those production methods more efficient,
00:39:30 --> 00:39:31: but I as it stands now,
00:39:31 --> 00:39:35: that would certainly be one of those end uses as
00:39:35 --> 00:39:38: we tried to electrify that it would have a.
00:39:38 --> 00:39:41: Bigger impact on our service size dependent how much,
00:39:41 --> 00:39:44: how much steam the user actually is meeting.
00:39:44 --> 00:39:49: Great. Electric steam sounds like a like a Prince album
00:39:49 --> 00:39:51: or something.
00:39:51 --> 00:39:55: UN cost, you know you're already dealing with designing
some
00:39:55 --> 00:39:57: of the highest cost building types.
00:39:57 --> 00:40:00: I mean what? What is cost in general?
00:40:00 --> 00:40:03: Looking like on all electric design for these for these
00:40:03 --> 00:40:05: types of projects.
00:40:05 --> 00:40:07: So I'll say if you were to design an all
00:40:07 --> 00:40:11: electric lab building and the same way that you would
00:40:11 --> 00:40:14: design any other type of commercial building,
00:40:14 --> 00:40:18: your first cost. If you're looking at swapping natural gas
00:40:18 --> 00:40:21: boilers for air source heat pumps.
00:40:21 --> 00:40:24: I would bet that you would actually see a pretty
00:40:24 --> 00:40:26: large increase in your first cost,
00:40:26 --> 00:40:29: but where we're finding and really convincing owners that this
00:40:29 --> 00:40:32: isn't much of a cost premium is implementing waste heat
00:40:32 --> 00:40:33: recovery,
00:40:33 --> 00:40:36: and these buildings we have this beautiful opportunity and

life

00:40:36 --> 00:40:40: sciences buildings that were actually have a lot of simultaneous

00:40:40 --> 00:40:41: heating and cooling demand,

00:40:41 --> 00:40:44: which means that we have cooling in the building at

00:40:44 --> 00:40:47: the same time that we have a heating demand in

00:40:47 --> 00:40:48: the building.

00:40:48 --> 00:40:51: And traditionally we would throw that heat away if we're

00:40:51 --> 00:40:54: cooling the building we would throw it away either.

00:40:54 --> 00:40:56: To the air or we throw it away to a

00:40:56 --> 00:40:56: cooling tower,

00:40:56 --> 00:40:59: and instead we've actually found ways that we can now

00:40:59 --> 00:41:02: reuse that in the building because we're pulling in a

00:41:02 --> 00:41:03: lot of outside air,

00:41:03 --> 00:41:05: we need to cool the teardown.

00:41:05 --> 00:41:07: We also need to add space space,

00:41:07 --> 00:41:09: three heating at some of our zones,

00:41:09 --> 00:41:11: an instead of throwing things away,

00:41:11 --> 00:41:12: we can just reuse it.

00:41:12 --> 00:41:15: So we're just swapping our energy around the building and

00:41:15 --> 00:41:17: making it actually a really efficient system.

00:41:17 --> 00:41:20: And because of this, we're also able to downsize our

00:41:20 --> 00:41:24: equipment that we actually need for generating space heating because.

00:41:24 --> 00:41:27: Now we have part of that heating coming from energy

00:41:27 --> 00:41:29: reuse in the building,

00:41:29 --> 00:41:31: so we only have to have a smaller fraction of

00:41:31 --> 00:41:32: upfront cost,

00:41:32 --> 00:41:35: and so that's. First and foremost,

00:41:35 --> 00:41:38: the most important cost that we should talk about,

00:41:38 --> 00:41:42: especially with developers. I just completed permit for a life

00:41:42 --> 00:41:44: sciences building.

00:41:44 --> 00:41:48: We actually ironically switched to an all electric design in

00:41:48 --> 00:41:51: DD and we actually found that at that point in

00:41:51 --> 00:41:53: the design we were able to.

00:41:53 --> 00:41:56: Swapped out our cooling towers and we did some waste

00:41:57 --> 00:41:59: heat recovery technologies in the building,

00:41:59 --> 00:42:02: so we illuminated cooling towers but we added waste heat

00:42:02 --> 00:42:05: energy recovery and it was only less than 2%

00:42:05 --> 00:42:07: cost premium to do that for the project.

00:42:07 --> 00:42:11: Even in DDS, so there's ways that we can find

00:42:11 --> 00:42:14: some shift shuffling around of our funding.

00:42:14 --> 00:42:20: Great, only an engineer describes simultaneous heating and cooling demand

00:42:20 --> 00:42:22: as a beautiful situation.

00:42:22 --> 00:42:25: What about the grid? I'm going to ask everybody when

00:42:25 --> 00:42:29: we get to questions in the audience about blackouts,

00:42:29 --> 00:42:31: but in general, about, you know,

00:42:31 --> 00:42:34: demand as like an electrical demand from the grid.

00:42:34 --> 00:42:37: Do we have a grid that can handle the increased

00:42:37 --> 00:42:41: demand that's going to be coming from all electric buildings?

00:42:41 --> 00:42:44: Megan, I. I think that you know to start it,

00:42:44 --> 00:42:46: at least for life. Life sciences.

00:42:46 --> 00:42:49: I'll start there.

00:42:49 --> 00:42:52: Terms of I know that all of these blackouts and

00:42:52 --> 00:42:54: power grid failures is ever popular topic.

00:42:54 --> 00:42:56: We have the same risk in the summertime,

00:42:56 --> 00:42:59: so I think there's this fear that by switching to

00:42:59 --> 00:43:01: all electric buildings that were,

00:43:01 --> 00:43:03: this is now going to be a new problem.

00:43:03 --> 00:43:05: It's not a new problem,

00:43:05 --> 00:43:07: it's just that space heating is going to be all

00:43:07 --> 00:43:08: electric now.

00:43:08 --> 00:43:11: But we have the same issues in the summertime,

00:43:11 --> 00:43:14: which for California that's our our issues when we have

00:43:14 --> 00:43:17: wildfires and we've already seen how we have to adapt

00:43:17 --> 00:43:19: and deal with those issues.

00:43:19 --> 00:43:22: Not that that is. Something that we want to be

00:43:22 --> 00:43:22: dealing with,

00:43:22 --> 00:43:25: but we know how to at least approach those in

00:43:25 --> 00:43:27: those summer months.

00:43:27 --> 00:43:30: What we're seeing with a lot of our building owners

00:43:30 --> 00:43:35: is that there's different considerations when we're sizing our emergency

00:43:35 --> 00:43:36: backup power.

00:43:36 --> 00:43:40: So typically you're sizing your backup power for life sciences

00:43:40 --> 00:43:42: and healthcare for that peak design day,

00:43:42 --> 00:43:45: which is always going to be in the summer.

00:43:45 --> 00:43:48: So when we are switching to electric heating,

00:43:48 --> 00:43:52: we already have the capacity in place typically to support

00:43:52 --> 00:43:52: that need,

00:43:52 --> 00:43:56: so it's not really. Changing anything in terms of the

00:43:56 --> 00:43:59: capacity of backup power that we need to provide,

00:43:59 --> 00:44:02: nor is it, nor we've seen a substantial increase in

00:44:02 --> 00:44:05: our normal power impact on the grid.

00:44:05 --> 00:44:08: I think it's a bit of a different story when

00:44:08 --> 00:44:11: we look at these other building types and I'll let

00:44:11 --> 00:44:14: those experts speak to commercial and residential,

00:44:14 --> 00:44:18: but I think there's ways that we can certainly reduce

00:44:19 --> 00:44:21: those demands on the grid.

00:44:21 --> 00:44:24: Great yeah, I'll circle back around how you all are

00:44:24 --> 00:44:28: talking about internally into customers to clients and tenants

00:44:28 --> 00:44:29: about

00:44:28 --> 00:44:29: about blackouts in a second.

00:44:29 --> 00:44:32: Once we finish very.

00:44:32 --> 00:44:33: It is top of mind,

00:44:33 --> 00:44:37: not only in California, but of course what happened in

00:44:37 --> 00:44:39: Texas this year.

00:44:39 --> 00:44:41: So thank you, Megan Berry Hooper.

00:44:41 --> 00:44:44: So in San Francisco this is all your fault that

00:44:44 --> 00:44:48: we're having to talk about electric buildings.

00:44:48 --> 00:44:50: So that was the other way around,

00:44:50 --> 00:44:52: yeah?

00:44:52 --> 00:44:54: Although you are all the votes yourself.

00:44:54 --> 00:44:57: So why is San Francisco doing this and what are

00:44:57 --> 00:45:01: the benefits of San Francisco is hoping to achieve for

00:45:01 --> 00:45:04: its citizens and for the city by adopting all electric

00:45:04 --> 00:45:06: ordinance?

00:45:06 --> 00:45:10: Yeah well, great question. So so the ordinance itself is

00:45:10 --> 00:45:14: called the San Francisco's all electric new construction

00:45:14 --> 00:45:17: ordinance,

00:45:14 --> 00:45:17: and while there's quite a bit of detail,

00:45:17 --> 00:45:20: it is meant to be self explanatory in the title

00:45:20 --> 00:45:23: that it applies to all new buildings,

00:45:23 --> 00:45:25: new construction of all scales and uses,

00:45:25 --> 00:45:28: but it does not apply to existing building,

00:45:28 --> 00:45:30: so it's just focused on that.

00:45:30 --> 00:45:34: That easiest question 1st and the motivations for the

00:45:35 --> 00:45:37: ordinance

00:45:35 --> 00:45:37: from the sponsoring supervisor and.

00:45:37 --> 00:45:41: And mayor and elected officials have been health and safety

00:45:41 --> 00:45:42: of San Francisco.

00:45:42 --> 00:45:45: It's resilience, equity and climate change.

00:45:45 --> 00:45:46: And really, in that order.

00:45:46 --> 00:45:48: So you heard Panama, you know,

00:45:48 --> 00:45:51: kind of you shared with us briefly.

00:45:51 --> 00:45:55: Some of the major outdoor air impacts in aggregate of

00:45:55 --> 00:45:56: building.

00:45:56 --> 00:45:59: Building gas use, but in addition we looked with stake

00:45:59 --> 00:46:04: holders at the carbon monoxide nitrogen oxide particulate matter releases

00:46:04 --> 00:46:06: from using gas appliances,

00:46:06 --> 00:46:10: particularly cooking inside our buildings and UCLA in the last

00:46:10 --> 00:46:11: 18 months.

00:46:11 --> 00:46:14: Pad helpful estimate that actually quantified four SF.

00:46:14 --> 00:46:16: What's the expected impact if,

00:46:16 --> 00:46:20: in terms of incremental asthma and cardiovascular disease,

00:46:20 --> 00:46:24: and they found that exposure indoors so those pollutants from

00:46:24 --> 00:46:26: gas appliances exceeds.

00:46:26 --> 00:46:30: \$1.2 billion in economic impact to the Greater Bay Area

00:46:30 --> 00:46:33: annually and about 250 million of that falls on San

00:46:33 --> 00:46:34: Francisco's.

00:46:34 --> 00:46:37: If you we want to talk more human terms,

00:46:37 --> 00:46:40: that's 65 premature deaths in the city.

00:46:40 --> 00:46:44: A year that we could avoid if we weren't emitting

00:46:44 --> 00:46:47: those pollutants inside our homes or buildings.

00:46:47 --> 00:46:50: In terms of safety.

00:46:50 --> 00:46:54: It shouldn't be too surprising horse that gas is flammable

00:46:54 --> 00:46:55: and explosive material,

00:46:55 --> 00:46:59: and so there's a public safety risk an we looked

00:46:59 --> 00:47:02: at that the common figures that on average in the

00:47:02 --> 00:47:03: US against oil,

00:47:03 --> 00:47:06: gas or oil pipeline, catches fire every four days.

00:47:06 --> 00:47:08: There's an injury over 5 days.

00:47:08 --> 00:47:10: This explosion of 11 days,

00:47:10 --> 00:47:12: if vitality every 26 days.

00:47:12 --> 00:47:14: And that's not just general in the US.

00:47:14 --> 00:47:18: So when in February 2019 we experienced the gas line

00:47:18 --> 00:47:19: explosion.

00:47:19 --> 00:47:21: Gary St. Destroyed 5 buildings.

00:47:21 --> 00:47:24: Few days later the cities Hella Justice had to be

00:47:24 --> 00:47:26: evacuated to another gas leak.

00:47:26 --> 00:47:28: Thankfully, that didn't end in tragedy,

00:47:28 --> 00:47:31: but as recently of course we can all recall the

00:47:31 --> 00:47:35: events and tragedy in 2010 when explosion gets pipeline,

00:47:35 --> 00:47:39: San Bruno destroyed an entire neighborhood and resulted in eight

00:47:39 --> 00:47:40: fatalities.

00:47:40 --> 00:47:44: So safety is something that's directly affected by plumbing a

00:47:44 --> 00:47:48: flammable explosive material through all of our building stock.

00:47:48 --> 00:47:51: And that does relate to equity in the sense that

00:47:51 --> 00:47:55: those impacts both disproportionately fall on communities of color who

00:47:55 --> 00:47:59: spend a disproportionate their amount of their time was prior

00:47:59 --> 00:48:02: to the pandemic, and then just portion of their portion

00:48:02 --> 00:48:04: of their income on energy.

00:48:04 --> 00:48:07: You have a greater prevalence of asthma,

00:48:07 --> 00:48:10: particularly San Francisco due to poor indoor air quality.

00:48:10 --> 00:48:13: So this you know this is an important aspect for

00:48:13 --> 00:48:16: us to provide progress for Community.

00:48:16 --> 00:48:18: We look at resilience. Yes,

00:48:18 --> 00:48:20: we do need to talk about the grid itself,

00:48:20 --> 00:48:23: but we also need to look at other impacts that

00:48:23 --> 00:48:25: we face and famously,

00:48:25 --> 00:48:28: you know earthquakes happen in San Francisco.

00:48:28 --> 00:48:31: We have a use Geological Survey estimates.

00:48:31 --> 00:48:33: We have a 70% chance of a 7.9 excuse me

00:48:33 --> 00:48:37: 6.9 or greater earthquake within the next 30 years and

00:48:37 --> 00:48:40: we work with all the utilities that serve San Francisco

00:48:40 --> 00:48:44: to understand what the effects would be of likely disasters,

00:48:44 --> 00:48:47: such as that. And what would it?

00:48:47 --> 00:48:50: Recovery taken, how would we be prepared for it?

00:48:50 --> 00:48:53: And it was pijani's estimate that it would take six

00:48:53 --> 00:48:56: months to restore gas service to 95%

00:48:56 --> 00:49:01: of the city and that they could restore electricity service

00:49:01 --> 00:49:04: citywide within about 6 days.

00:49:04 --> 00:49:06: If we look back little farther in time,

00:49:06 --> 00:49:09: gas line ruptures caused about half of the fires in

00:49:09 --> 00:49:11: San Francisco after the 1990.

00:49:11 --> 00:49:13: Excuse me in 1989, Loma Prieta earthquake.

00:49:13 --> 00:49:17: And that's similar to figures that have been found in

00:49:17 --> 00:49:19: other other disasters.

00:49:19 --> 00:49:21: And so then I bring this to climate change and

00:49:21 --> 00:49:22: so yes,

00:49:22 --> 00:49:25: climate change is important. But that's sort of abstract,

00:49:25 --> 00:49:28: but we do it. I think it is actually particularly

00:49:28 --> 00:49:29: important to this audience,

00:49:29 --> 00:49:34: in particular that we have sometimes gotten stuck in a.

00:49:34 --> 00:49:36: In the notion that there was some option to not

00:49:36 --> 00:49:38: change and not prepare for climate change,

00:49:38 --> 00:49:40: but rather it's really the opposite.

00:49:40 --> 00:49:42: But if you were building owner.

00:49:42 --> 00:49:45: You essentially have bought some shares in the future,

00:49:45 --> 00:49:47: and particularly in San Francisco,

00:49:47 --> 00:49:50: and there isn't. There isn't a way to avoid entirely

00:49:50 --> 00:49:51: avoid costs.

00:49:51 --> 00:49:56: There's either addressing and mitigating risks to our community.

00:49:56 --> 00:49:59: Or there's the way that we as a community have

00:49:59 --> 00:50:03: to pull together if we don't mitigate climate risk is

00:50:03 --> 00:50:07: through a lot of negative impacts that in the medium

00:50:07 --> 00:50:09: term include taxes like that.

00:50:09 --> 00:50:13: That's how we gather money to to build up and

00:50:13 --> 00:50:15: improve infrastructure.

00:50:15 --> 00:50:18: So we look at greenhouse gas emissions.

00:50:18 --> 00:50:21: Buildings account for 45% of citywide emissions,

00:50:21 --> 00:50:24: and 82% of those emissions come from natural gas.

00:50:24 --> 00:50:28: The happy way to put that is in the last

00:50:28 --> 00:50:29: 30 years,

00:50:29 --> 00:50:31: so from 1990 to 2020.

00:50:31 --> 00:50:37: Emissions from operating buildings San Francisco declined 50 percent 50.

00:50:37 --> 00:50:40: So the entire city, not just the city government,

00:50:40 --> 00:50:43: but the whole city all in half as much emissions.

00:50:43 --> 00:50:46: But 82% of the remaining emissions are from natural gas,

00:50:46 --> 00:50:49: and so we really can't get to long term climate

00:50:49 --> 00:50:53: emission goal without addressing the natural gas side of the

00:50:53 --> 00:50:53: equation.

00:50:53 --> 00:50:58: So those were really the main considerations that drove the

00:50:58 --> 00:51:00: starting with new construction.

00:51:00 --> 00:51:04: 82% seems like a lot.

00:51:04 --> 00:51:07: So what kind of feedback did you get from developers

00:51:07 --> 00:51:10: and the construction community on on the adoption of the

00:51:10 --> 00:51:11: standard?

00:51:11 --> 00:51:13: I know you did extensive outreach,

00:51:13 --> 00:51:15: So what did you hear over some of the main

00:51:16 --> 00:51:16: concerns?

00:51:16 --> 00:51:20: Or was everyone just pretty much clapping you on the

00:51:20 --> 00:51:23: back and congratulating you and welcoming it?

00:51:23 --> 00:51:27: Well, so this particular ordinance was led by Supervisor Rafael

00:51:27 --> 00:51:28: Mandelman,

00:51:28 --> 00:51:33: and so he had sponsored other legislation favoring

00:51:33 --> 00:51:35: electrification in
 00:51:35 --> 00:51:39: new construction quite recently,
 00:51:39 --> 00:51:40: and he really asked for input on taking that next
 00:51:40 --> 00:51:44: step and concurrently,
 00:51:44 --> 00:51:48: Mayor Breed had back at the global Climate Action Summit
 00:51:48 --> 00:51:51: a couple of years ago made a commitment to ensure
 00:51:51 --> 00:51:53: that San Francisco buildings would.
 00:51:53 --> 00:51:56: The new construction, would it?
 00:51:56 --> 00:51:56: Be able to operate with no missions no later than
 00:51:56 --> 00:52:00: 2030,
 00:52:00 --> 00:52:04: and then we'd achieve the same in existing buildings
 00:52:04 --> 00:52:07: throughout
 00:52:07 --> 00:52:08: the community by 2050 and associ having made that
 00:52:08 --> 00:52:11: commitment,
 00:52:11 --> 00:52:15: then wanted to ask stakeholders how are we going to
 00:52:15 --> 00:52:19: get that done?
 00:52:19 --> 00:52:22: Like what is an inclusive path and practical path to
 00:52:22 --> 00:52:25: meeting our mission reduction responsibilities and that led to
 00:52:25 --> 00:52:27: the
 00:52:27 --> 00:52:31: formation of a 0 mission Buildings Task Force which broke
 00:52:31 --> 00:52:33: the question down into smaller components so we had a
 00:52:33 --> 00:52:36: one word group specifically looking at new construction.
 00:52:36 --> 00:52:38: To directly inform this ordinance.
 00:52:38 --> 00:52:41: And three other working groups looking at existing municipal
 00:52:41 --> 00:52:45: buildings
 00:52:45 --> 00:52:49: and the challenges they face.
 00:52:49 --> 00:52:51: The largest existing commercial buildings and the particular
 00:52:51 --> 00:52:55: technical and
 00:52:55 --> 00:52:59: financial challenges they face.
 00:52:59 --> 00:53:01: And then existing residential which is.
 00:53:01 --> 00:53:06: Covers a lot of situations in a city's biggest SF
 00:53:06 --> 00:53:10: and really the the transition has to lead with equity
 00:53:10 --> 00:53:12: and focus on a just transition.
 00:53:12 --> 00:53:16: And so the whole focus on existing residential.
 00:53:16 --> 00:53:20: Centered those two values and was led by community
 00:53:20 --> 00:53:24: partners
 00:53:24 --> 00:53:28: with support from department.
 00:53:28 --> 00:53:32: And so it was interesting in bringing together those different
 00:53:32 --> 00:53:36: groups and having parallel conversations on a related topic.
 00:53:36 --> 00:53:40: Is there were some some commonality's.
 00:53:40 --> 00:53:44: So for new construction to answer actually answer question,
 00:53:44 --> 00:53:48: you know a four major main findings were it's important
 00:53:48 --> 00:53:52: just to act now that delay wouldn't make the transition

00:53:24 --> 00:53:25: easier,

00:53:25 --> 00:53:29: and that was a. You know consensus ranging from people

00:53:29 --> 00:53:32: who I do think came to the work group.

00:53:32 --> 00:53:34: With an expectation of the outcome as well as we

00:53:34 --> 00:53:38: had the largest meant many of the largest developers and

00:53:38 --> 00:53:39: owners in the city,

00:53:39 --> 00:53:43: including developers of laboratory properties and complex

00:53:43 --> 00:53:47: buildings,

00:53:47 --> 00:53:51: and and including developers with small infill projects.

00:53:51 --> 00:53:53: And you know that there was a concurrence that just

00:53:53 --> 00:53:57: makes sense to move forward,

00:53:57 --> 00:54:01: that it was helpful to recognize that health and well

00:54:01 --> 00:54:03: being and resilience all pointed in the same direction.

00:54:03 --> 00:54:07: Who is it? A lot of call for the city

00:54:07 --> 00:54:10: to communicate about this more clearly to send it

00:54:10 --> 00:54:12: unambiguous.

00:54:12 --> 00:54:17: Signal that we're going to make the transition.

00:54:17 --> 00:54:18: So the question needs to shift to how,

00:54:18 --> 00:54:22: rather than whether an that the workforce.

00:54:22 --> 00:54:27: Has a lot of strengths,

00:54:27 --> 00:54:30: but overall you know this actually is new and there's

00:54:30 --> 00:54:35: need for supporting their readiness for delivering on this

00:54:35 --> 00:54:36: transition,

00:54:36 --> 00:54:41: and new construction is a good place to start.

00:54:41 --> 00:54:46: Just given the starting point of relative complexity and a

00:54:46 --> 00:54:48: relatively clean slate.

00:54:48 --> 00:54:52: So building new construction projects will help expand

00:54:52 --> 00:54:55: workforce readiness

00:54:55 --> 00:54:59: to tackle the more complex problems in existing buildings.

00:54:59 --> 00:55:03: So yeah, it was not Kumbaya necessarily,

00:55:03 --> 00:55:06: but it definitely was a.

00:55:06 --> 00:55:08: Yep, an effective way to build a lot of buy

00:55:08 --> 00:55:13: in among people who didn't necessarily come to the table

00:55:13 --> 00:55:14: expecting to support the outcome.

00:55:14 --> 00:55:17: Great good job. Mr Anna.

00:55:17 --> 00:55:20: Good process. I'm wonderful that was the questions from you

00:55:20 --> 00:55:24: a lie to the speakers.

00:55:24 --> 00:55:27: I think we now go to ULI members for the

00:55:27 --> 00:55:30: speakers.

00:55:30 --> 00:55:34: I believe we still do have around the panel is

00:55:34 --> 00:55:38: going to go until 5:10 and then the networking will

00:55:38 --> 00:55:42: start and we'll go do the networking until 5:25 so

00:55:42 --> 00:55:46: we still have about another 15 minutes to take some

00:55:30 --> 00:55:32: questions from the audience.

00:55:32 --> 00:55:35: Please feel free to put them in the chat and

00:55:35 --> 00:55:39: we'll choose the safe ones that don't look bad for

00:55:39 --> 00:55:40: electrification.

00:55:40 --> 00:55:41: So for all of you,

00:55:41 --> 00:55:45: Megan mentioned it briefly, but you can't talk about building

00:55:45 --> 00:55:50: electrification without talking about California's world leading wildfire seasons.

00:55:50 --> 00:55:53: And then the blackouts that come from it.

00:55:53 --> 00:55:55: And so I'm just wondering,

00:55:55 --> 00:55:59: how do you talk internally about electrification and the blackouts

00:55:59 --> 00:56:00: and wildfires?

00:56:00 --> 00:56:02: How do you talk to clients?

00:56:02 --> 00:56:05: How do you talk to potential tenants like what you've

00:56:05 --> 00:56:07: now had three years?

00:56:07 --> 00:56:10: So hopefully you know what you're doing right now on

00:56:11 --> 00:56:11: this issue.

00:56:11 --> 00:56:14: How are you talking about this?

00:56:14 --> 00:56:15: And we can go in order.

00:56:15 --> 00:56:19: Sarashi Megan Berry on this.

00:56:19 --> 00:56:21: Yeah, I'm happy to jump in on this.

00:56:21 --> 00:56:23: We think of this issue is you know we used

00:56:23 --> 00:56:27: to live in the world where buildings were just consumers

00:56:27 --> 00:56:30: of energy and we didn't really have relationship with the

00:56:30 --> 00:56:33: grid. That was it. There was two way was just

00:56:33 --> 00:56:34: get power,

00:56:34 --> 00:56:36: power and asking us. And that was the end of

00:56:36 --> 00:56:36: it.

00:56:36 --> 00:56:40: Now we're really realizing this relationship that we have with

00:56:40 --> 00:56:43: the grid and we're trying to help the grid itself

00:56:43 --> 00:56:44: be more resilient.

00:56:44 --> 00:56:47: I see the key to that being battery storage.

00:56:47 --> 00:56:49: You know we really need.

00:56:49 --> 00:56:51: A rapid deployment of storage,

00:56:51 --> 00:56:54: and if we're really going to get to you know

00:56:54 --> 00:56:58: you can get to so many percentage renewable without storage,

00:56:58 --> 00:57:01: but then you really need renewables.

00:57:01 --> 00:57:05: And unfortunately, especially you know over the last few years

00:57:05 --> 00:57:08: I feel like everybody's sort of quote gotten away with

00:57:08 --> 00:57:11: installing a lot of solar and not pairing it with

00:57:11 --> 00:57:14: a bunch of storage. Storage is hard.

00:57:14 --> 00:57:16: We have a bunch of storage projects.

00:57:16 --> 00:57:19: They're not easy. They're not as like slam dunk for

00:57:19 --> 00:57:20: as.

00:57:20 --> 00:57:22: Solar PV they're not as lucrative,

00:57:22 --> 00:57:25: but the really important, so that's that's one way we

00:57:25 --> 00:57:26: get through it.

00:57:26 --> 00:57:28: And so we, yes, we we see things like PG

00:57:28 --> 00:57:29: and E's power line.

00:57:29 --> 00:57:32: You know, being a causing factor of the last out

00:57:32 --> 00:57:34: of another Californians.

00:57:34 --> 00:57:37: But also then it's very mentioned we have gas lines

00:57:37 --> 00:57:37: exploding,

00:57:37 --> 00:57:40: so it's not like we're we feel any safer one

00:57:40 --> 00:57:43: way or the other so we don't feel like going.

00:57:43 --> 00:57:45: All electric is increasing our wildfire risk.

00:57:45 --> 00:57:48: We think that we have a responsibility to not just

00:57:48 --> 00:57:50: enjoy the fruits of it.

00:57:50 --> 00:57:54: Increasingly renewable electric grid, but actually help it

00:57:54 --> 00:57:58: Electric via storage and that is how we are having

00:57:58 --> 00:58:00: that conversation.

00:58:00 --> 00:58:04: Thank you Richie. Yeah, we are sort of under similar

00:58:04 --> 00:58:05: pads.

00:58:05 --> 00:58:09: We have a few pilot projects looking at battery storage

00:58:09 --> 00:58:11: through the pedia knees as Jeff program.

00:58:11 --> 00:58:15: Though it's moving at a turtle speed right now,

00:58:15 --> 00:58:18: I must say so. The other consideration for us is

00:58:18 --> 00:58:23: also sort of thinking about internal capacity issues that are

00:58:23 --> 00:58:26: building so we are trying to pair all electric with

00:58:26 --> 00:58:30: and maximizing solar PV. Initially we used to do solar

00:58:30 --> 00:58:32: thermal to offset the gas.

00:58:32 --> 00:58:36: News from boilers, which was anyways really hard to

00:58:36 --> 00:58:40: maintain

00:58:36 --> 00:58:40: that system has so many moving parts so we're trying

00:58:40 --> 00:58:43: to sort of figure out within our sort of.

00:58:43 --> 00:58:47: I'm thinking entirely money for the budget we have for

00:58:47 --> 00:58:50: them and how can we fit in both PV an

00:58:50 --> 00:58:53: all electric is sort of still meet Rey.

00:58:53 --> 00:58:55: Target on the grid issue Panama.

00:58:55 --> 00:59:00: Frankly I feel like putting this question back on baryon

00:59:00 --> 00:59:03: on sharing a little bit on how PG and E

00:59:03 --> 00:59:03: an.

00:59:03 --> 00:59:07: Hetch Hetchy versus another you committee that we have to

00:59:07 --> 00:59:10: get our power from because we get some of our

00:59:10 --> 00:59:11: funding from city.

00:59:11 --> 00:59:13: So we are in this weird PG.

00:59:13 --> 00:59:16: Any head touchy situation. So I don't have too much

00:59:17 --> 00:59:18: to share on that yet.

00:59:22 --> 00:59:25: Barry, do you want to talk about how you're handling

00:59:25 --> 00:59:25: conversation?

00:59:25 --> 00:59:29: Brown blackouts, and resiliency? Sure,

00:59:29 --> 00:59:32: thankfully most some of those questions you come from,

00:59:32 --> 00:59:35: Richie, so I'll come back to that.

00:59:35 --> 00:59:37: But the 99% of time they come from in a

00:59:37 --> 00:59:39: pijani context and.

00:59:41 --> 00:59:44: You know, I think we've heard the key themes that

00:59:44 --> 00:59:46: the San Francisco,

00:59:46 --> 00:59:49: due to its location happens to not be among the

00:59:49 --> 00:59:52: communities that are that are typically are affected or are

00:59:53 --> 00:59:57: currently expected to be affected by public safety power shutoffs.

00:59:57 --> 01:00:00: But we have other reasons that their blackouts occur.

01:00:00 --> 01:00:04: The important thing to keep in mind is we actually

01:00:04 --> 01:00:04: can't,

01:00:04 --> 01:00:08: as any practical matter, electrify all of San Francisco.

01:00:08 --> 01:00:10: Super fast, I mean it will take time,

01:00:10 --> 01:00:14: particularly existing buildings, and so if we narrow ourselves to

01:00:15 --> 01:00:16: what's the situation.

01:00:16 --> 01:00:19: Facing a building owner. It's already part of building a

01:00:19 --> 01:00:23: new building that you would work with Pijani on electric

01:00:23 --> 01:00:25: infrastructure serving that site and we.

01:00:25 --> 01:00:28: All discussions I've had both on on both sides of

01:00:28 --> 01:00:31: the meter have reinforced that notion that that is a

01:00:31 --> 01:00:32: time consuming process,

01:00:32 --> 01:00:37: but the time doesn't necessarily have to get any longer.

01:00:37 --> 01:00:40: And it isn't necessarily a massive effect,

01:00:40 --> 01:00:44: in part because smart engineers start looking at ways to

01:00:45 --> 01:00:50: question whether the total electric peak electric load would actually

01:00:50 --> 01:00:53: change in an all electric scenario,

01:00:53 --> 01:00:57: and recurring theme is. Until you've done a project like

01:00:57 --> 01:00:57: that,

01:00:57 --> 01:00:59: you think that it will,

01:00:59 --> 01:01:00: and once you've done one,
01:01:00 --> 01:01:03: you find a lot of solutions that help minimize that
01:01:03 --> 01:01:06: incremental impact or frequently even eliminate it.
01:01:06 --> 01:01:10: Uhm? And so this gets to reliability as well.
01:01:10 --> 01:01:14: The grid of 2020 will not support the built environment
01:01:14 --> 01:01:16: of 2050 no matter what.
01:01:16 --> 01:01:19: We have to keep investing in our electric infrastructure,
01:01:19 --> 01:01:22: and so predictability is, I think,
01:01:22 --> 01:01:26: really, what utilities need, and that's a message we got
01:01:26 --> 01:01:30: from pijani and from from the power enterprise at PC.
01:01:30 --> 01:01:33: And so we wait. I think we're moving in the
01:01:33 --> 01:01:36: right direction that clear signals from the state as well
01:01:36 --> 01:01:40: as from cities and from customers are helping you get
01:01:40 --> 01:01:43: the planning in order to improve the reliability of our
01:01:43 --> 01:01:44: grid.
01:01:44 --> 01:01:47: But it's going to take time whether we're using gas
01:01:47 --> 01:01:47: or not.
01:01:50 --> 01:01:53: Great thank you all.
01:01:53 --> 01:01:58: Question about some something that I referenced which was
01:01:58 --> 01:01:59: nitrogen
01:01:58 --> 01:01:59: oxides,
01:01:59 --> 01:02:03: which are the major precursor to smog.
01:02:03 --> 01:02:07: And that buildings in the Bay Area represented more than
01:02:07 --> 01:02:10: double the amount of smog causing pollutants than cars.
01:02:10 --> 01:02:11: And so here's the data.
01:02:11 --> 01:02:12: I also put in the chat.
01:02:12 --> 01:02:13: The link to the data.
01:02:13 --> 01:02:16: So instead of reading through the data,
01:02:16 --> 01:02:17: some of us are visual learners,
01:02:17 --> 01:02:19: and so here's the visual on it.
01:02:19 --> 01:02:23: This looks at the major air quality management districts
01:02:23 --> 01:02:25: across
01:02:23 --> 01:02:25: California and on the right on the left side you
01:02:25 --> 01:02:28: see all of the emissions that come from burning gas
01:02:28 --> 01:02:32: and buildings and those different air quality management
01:02:32 --> 01:02:34: districts and
01:02:32 --> 01:02:34: on the right side you see all of the.
01:02:34 --> 01:02:39: Nitrogen oxides that come from cars.
01:02:39 --> 01:02:42: In those same air districts and so here is the
01:02:42 --> 01:02:45: Bay Area Air Quality Management District.
01:02:45 --> 01:02:48: So per day we produce about 21 tons of nitrogen
01:02:48 --> 01:02:52: oxides from building burning gas and buildings and our cars,
01:02:52 --> 01:02:55: about 8 tons a day so you can see that

01:02:55 --> 01:02:57: it's over over double for buildings.

01:02:57 --> 01:03:00: So and again, the link to the actual data at

01:03:00 --> 01:03:04: the Air Resources Board website is in the chat.

01:03:04 --> 01:03:06: Happy to talk offline folks.

01:03:06 --> 01:03:09: Megan, it was mentioned a couple times.

01:03:09 --> 01:03:14: In the presentation about energy modeling and energy efficiency and

01:03:14 --> 01:03:18: the interaction between energy efficiency and electrification.

01:03:18 --> 01:03:21: So where is the state right now on our modeling

01:03:21 --> 01:03:25: and does it does building all electric make it hard

01:03:25 --> 01:03:29: to meet our energy efficiency goals and our energy efficiency

01:03:29 --> 01:03:29: laws?

01:03:32 --> 01:03:34: How much time do you have?

01:03:34 --> 01:03:36: I could I could go on this for hours,

01:03:36 --> 01:03:38: but I will keep it short for our audience.

01:03:38 --> 01:03:40: There are a lot of challenges.

01:03:40 --> 01:03:43: I think the a lot of these local jurisdictions were

01:03:43 --> 01:03:46: eager to get the ball rolling on electrification,

01:03:46 --> 01:03:48: and I think that's wonderful.

01:03:48 --> 01:03:51: And I think the Energy Commission is about three years

01:03:51 --> 01:03:52: behind us.

01:03:52 --> 01:03:55: You know, you gave some great updates to where we're

01:03:55 --> 01:03:56: looking at for 2022,

01:03:56 --> 01:03:59: which doesn't go into effect until January 1st of 2023.

01:03:59 --> 01:04:02: So it's still very much a far ways off.

01:04:02 --> 01:04:04: And Even so, you saw that the.

01:04:04 --> 01:04:07: Changes that we need in the energy code to really

01:04:07 --> 01:04:10: make big big improvements on the larger building stock are

01:04:10 --> 01:04:13: limited and an I think will still have some issues

01:04:13 --> 01:04:15: not to go too in the weeds,

01:04:15 --> 01:04:18: but for those that are in the know on what

01:04:18 --> 01:04:21: the California Energy Code requires you to demonstrate,

01:04:21 --> 01:04:24: there's a standard design which is there.

01:04:24 --> 01:04:27: This is what a standard building in California should be

01:04:27 --> 01:04:28: designed as,

01:04:28 --> 01:04:31: and you need to design this efficiency level or greater

01:04:31 --> 01:04:33: right now that is still natural gas,

01:04:33 --> 01:04:37: and so it's a natural gas baseline and what we're

01:04:37 --> 01:04:37: finding.

01:04:37 --> 01:04:42: Specifically, an needs very complex building types like life

01:04:42 --> 01:04:43: sciences

01:04:42 --> 01:04:43: and healthcare.

01:04:43 --> 01:04:47: It's very challenging to demonstrate that we are better performance

01:04:47 --> 01:04:49: than the standard design,

01:04:49 --> 01:04:52: which is natural gas with an all electric design.

01:04:52 --> 01:04:54: Because we use these TV multipliers,

01:04:54 --> 01:04:57: which for lack of a better term think of it

01:04:57 --> 01:04:58: like energy costs,

01:04:58 --> 01:05:01: they think it kind of adds a multiplier for the

01:05:01 --> 01:05:03: amount of energy or using per end.

01:05:03 --> 01:05:06: Use an then this multiplier for that so you get

01:05:06 --> 01:05:08: a bit penalized when we use.

01:05:08 --> 01:05:10: More electricity in our building,

01:05:10 --> 01:05:12: even though if we were just to look at it

01:05:12 --> 01:05:14: with energy used to energy use,

01:05:14 --> 01:05:16: we have a much more efficient building.

01:05:16 --> 01:05:19: I just was looking at this for the Life sciences

01:05:19 --> 01:05:20: project.

01:05:20 --> 01:05:23: Our UI for the standard design case or energy use

01:05:23 --> 01:05:23: intensity.

01:05:23 --> 01:05:26: The energy score was 140 for the standard design and

01:05:26 --> 01:05:30: our proposed all electric building with 70 for Life Sciences

01:05:30 --> 01:05:30: building,

01:05:30 --> 01:05:33: which was astronomical. Like amazing.

01:05:33 --> 01:05:34: However, when we looked at TV,

01:05:34 --> 01:05:37: the time dependent valuation of our energy use,

01:05:37 --> 01:05:39: which is the score that.

01:05:39 --> 01:05:42: The California Energy Code gives it we barely got by

01:05:42 --> 01:05:44: it was 420 versus 400 like we barely got by

01:05:44 --> 01:05:47: by the skin of our teeth and so I think

01:05:47 --> 01:05:50: it's just this glaring issue right now and that we're

01:05:50 --> 01:05:53: going to be seen with local jurisdictions and what we

01:05:53 --> 01:05:55: had to do for this project.

01:05:55 --> 01:05:58: We had to actually get an alternative compliance and get

01:05:58 --> 01:06:02: a peer review and go through demonstrating that our building

01:06:02 --> 01:06:05: was more efficient than the Title 24 Energy Code building

01:06:05 --> 01:06:07: was so.

01:06:07 --> 01:06:09: There's plenty to catch up on,

01:06:09 --> 01:06:12: but I think I'm encouraged by so many in the

01:06:12 --> 01:06:15: industry and a lot of practitioners and developers and

01:06:15 --> 01:06:19: owners and utilities that are getting on board with this

01:06:19 --> 01:06:22: all electric push that the more voices there are being

01:06:22 --> 01:06:23: vocal that we need changes,

01:06:23 --> 01:06:26: the faster change will come.

01:06:26 --> 01:06:30: Great. I think a question perushim,

01:06:30 --> 01:06:33: maybe Sarah. A few people asked about,

01:06:33 --> 01:06:38: should we potentially be allowing like really small gas uses

01:06:38 --> 01:06:43: like for outdoor barbecues or drills or fire pits for

01:06:43 --> 01:06:45: restaurants to be allowed?

01:06:45 --> 01:06:48: And what's so wrong about that anyway?

01:06:50 --> 01:06:54: I can take take on multifamily if that's OK,

01:06:54 --> 01:06:56: Sarah.

01:06:56 --> 01:07:00: I would question like why for all these end users

01:07:00 --> 01:07:04: that are state of the art best electric versions out

01:07:04 --> 01:07:05: there,

01:07:05 --> 01:07:09: right? And it's like saying let's allow smoking for a

01:07:09 --> 01:07:10: few right?

01:07:10 --> 01:07:11: Like why not? So I have.

01:07:11 --> 01:07:17: And frankly, I've never heard an affordable enough property

01:07:17 --> 01:07:20: coming to us asking for these things.

01:07:20 --> 01:07:23: If the building is doing what it's supposed to be

01:07:23 --> 01:07:24: doing,

01:07:24 --> 01:07:26: we have good amenities, etc.

01:07:26 --> 01:07:30: I feel like it's good if we give an option

01:07:30 --> 01:07:34: then we someone will ask for exception on all electric

01:07:34 --> 01:07:34: ordinance.

01:07:34 --> 01:07:38: Do right so at least that's my standpoint.

01:07:38 --> 01:07:39: Not that I'm against it,

01:07:39 --> 01:07:44: but for our purposes I've not seen that as an

01:07:44 --> 01:07:44: issue.

01:07:44 --> 01:07:48: Great yeah, I may be committed a totally different like

01:07:48 --> 01:07:51: so everything that for she said I'll say that I

01:07:51 --> 01:07:55: I have found that allowing the flexibility for different leasing

01:07:55 --> 01:07:59: teams were like don't tell me you have to lease

01:07:59 --> 01:08:01: a restaurant or don't tell me I can't.

01:08:01 --> 01:08:04: Get this tenant because their executive chef is going to

01:08:04 --> 01:08:05: want to cook with fire.

01:08:05 --> 01:08:08: You know, know, right and then the whole building would

01:08:08 --> 01:08:10: have used gas and So what we found is like,

01:08:10 --> 01:08:13: OK, fine will make it possible and like I would

01:08:13 --> 01:08:15: say it's about half honestly of the tenants.

01:08:15 --> 01:08:17: Go ahead and run the gas line later,

01:08:17 --> 01:08:18: but the other half don't.

01:08:18 --> 01:08:20: Which to me is like very,

01:08:20 --> 01:08:22: very impressive that the other but a lot of times
 01:08:22 --> 01:08:23: like you,
 01:08:23 --> 01:08:25: right? I'm gonna leave it as is.
 01:08:25 --> 01:08:27: You know, we're at a point where 20%
 01:08:27 --> 01:08:29: of killers portfolio is all electric and we're,
 01:08:29 --> 01:08:32: you know. And and those buildings went fine and people
 01:08:32 --> 01:08:34: can eat food there and it's OK.
 01:08:34 --> 01:08:37: So it's one of these things where I individually do
 01:08:37 --> 01:08:39: what I do every time somebody comes to me for
 01:08:39 --> 01:08:43: permission for something silly that I'm obviously gonna say
 no
 01:08:43 --> 01:08:45: to. Which is like somebody this recently was like can
 01:08:45 --> 01:08:48: we break out the waterless urinals in this building?
 01:08:48 --> 01:08:50: Like we don't know how to maintain that.
 01:08:50 --> 01:08:53: I was like, no, you can't learn how to maintain
 01:08:53 --> 01:08:53: them,
 01:08:53 --> 01:08:57: so like. Individual no, I want the sustainability programs.
 01:08:57 --> 01:08:59: I'm suggesting that, but it's but it's one of these
 01:08:59 --> 01:09:02: things where I would be delighted to talk to any
 01:09:02 --> 01:09:05: tenant and have them visit the executive chef for the
 01:09:05 --> 01:09:07: buildings those times did get on board.
 01:09:07 --> 01:09:10: That kind of thing. And now the executive chefs.
 01:09:10 --> 01:09:12: By the way we're getting this is like high end
 01:09:12 --> 01:09:13: commercial,
 01:09:13 --> 01:09:15: are like getting competitive with each other,
 01:09:15 --> 01:09:18: but like, well, I have so much more control of
 01:09:18 --> 01:09:19: my induction stove.
 01:09:19 --> 01:09:21: But now that the line he has when I want
 01:09:21 --> 01:09:22: induction stoves,
 01:09:22 --> 01:09:24: I mean that is already starting.
 01:09:24 --> 01:09:26: Which is great.
 01:09:26 --> 01:09:27: So it's like it's a.
 01:09:27 --> 01:09:29: It's a question of, you know.
 01:09:29 --> 01:09:32: It's not worth it to lose it entire building going
 01:09:32 --> 01:09:35: electric versus mixed fuel over a single stove,
 01:09:35 --> 01:09:37: so I'll lose that battle,
 01:09:37 --> 01:09:39: but often I you know at the end of the
 01:09:39 --> 01:09:39: day,
 01:09:39 --> 01:09:42: the battle is not to be lost anyway.
 01:09:42 --> 01:09:45: Great, we're going to wrap this up.
 01:09:45 --> 01:09:48: I have one lightning round question for you all and
 01:09:48 --> 01:09:49: it's getting to a Sarita said.

01:09:49 --> 01:09:53: I would like you all to say one thing about
01:09:53 --> 01:09:54: cooking.
01:09:54 --> 01:09:57: Just one thing about cooking near in this whole space
01:09:57 --> 01:10:00: of electric versus gas which you're experiencing relationship.
01:10:00 --> 01:10:03: Just one thing. One sentence about cooking and I'm going
01:10:03 --> 01:10:06: to finish up as you're thinking about that will finish
01:10:06 --> 01:10:09: up that question that I just asked her if she
01:10:09 --> 01:10:12: and Sarah. So what you just described about allowing a
01:10:12 --> 01:10:15: little bit of gaseous or just say just cooking or
01:10:15 --> 01:10:18: just barbecues or just grills is actually P Jeannie's worst
01:10:18 --> 01:10:21: nightmare, not something described to me like this Star Wars
01:10:21 --> 01:10:25: player or Worst Nightmare is we electrify everything except
for
01:10:25 --> 01:10:25: peoples.
01:10:25 --> 01:10:27: Shows or barbecues or gas grills.
01:10:27 --> 01:10:30: And then we're having to charge everybody \$180.00 a month
01:10:31 --> 01:10:33: to be able to cook with gas because what we
01:10:33 --> 01:10:36: have to do is we have to maintain that entire
01:10:36 --> 01:10:39: system at a high quality of safety in order to
01:10:39 --> 01:10:42: be able to provide them or hours nine years everybody
01:10:42 --> 01:10:45: in the neighborhood electrify's except for the two guys that
01:10:45 --> 01:10:48: want to continue to have a cook off with their
01:10:48 --> 01:10:51: gas stoves and we have to maintain the entire gas
01:10:51 --> 01:10:55: system so the challenges you know putting in that high
01:10:55 --> 01:10:59: pressure natural gas line. Or those barbecues really brings
those
01:10:59 --> 01:11:02: projects into a situation of really high costs out into
01:11:02 --> 01:11:03: the future.
01:11:03 --> 01:11:06: So lightning round one sentence about cooking,
01:11:06 --> 01:11:08: we're going to go in order.
01:11:08 --> 01:11:11: Sarah Russi, Megan Berry, Sarah.
01:11:11 --> 01:11:14: My friends will be check out the Consumer Reports on
01:11:14 --> 01:11:18: stoves and you'll find that most of the top rated
01:11:18 --> 01:11:20: stoves do not use gas,
01:11:20 --> 01:11:23: so I think that we are seeing that people love
01:11:23 --> 01:11:26: their induction stoves when they get them.
01:11:26 --> 01:11:30: It's just a matter of getting them a little bit
01:11:30 --> 01:11:31: of experience with them,
01:11:31 --> 01:11:35: and that is as true of home chefs as it
01:11:35 --> 01:11:37: is a professional chefs.
01:11:37 --> 01:11:40: That was a great first sentence and then a good
01:11:40 --> 01:11:42: additional 3 fantastic.
01:11:45 --> 01:11:48: I I would just say let's care about food and

01:11:48 --> 01:11:49: good food.
01:11:49 --> 01:11:51: Let's not care about the source,
01:11:51 --> 01:11:55: right? I mean why we're so stuck to gas when
01:11:55 --> 01:11:58: I can get my same food through electric.
01:11:58 --> 01:12:01: Great thank you, Megan.
01:12:01 --> 01:12:05: Yeah, I think if Thomas Keller can investigate using all
01:12:05 --> 01:12:07: electric cooking for the French laundry,
01:12:07 --> 01:12:10: I think all of the home chefs can also get
01:12:10 --> 01:12:14: on board for using all electric for their home cooking
01:12:14 --> 01:12:15: needs and and again,
01:12:15 --> 01:12:18: just echoing Ruthie. I mean if it the product and
01:12:18 --> 01:12:21: how it tastes and the method of how you get
01:12:21 --> 01:12:23: there is not important.
01:12:23 --> 01:12:28: Yeah, our governor agrees, and Barry was a French laundry.
01:12:28 --> 01:12:33: Well said by everyone that you were interested in meeting
01:12:33 --> 01:12:35: people where they are.
01:12:35 --> 01:12:37: And so we need early adopters,
01:12:37 --> 01:12:40: particularly commercial, particularly with diverse cuisine.
01:12:40 --> 01:12:44: So if you know someone who's good with an electric
01:12:44 --> 01:12:45: stove.
01:12:45 --> 01:12:47: I'd like to meet them.
01:12:47 --> 01:12:50: Wonderful, well thank you all so much as I think
01:12:50 --> 01:12:50: you saw.
01:12:50 --> 01:12:53: We had really be Avengers of building decarbonization here.
01:12:53 --> 01:12:56: Just a fantastic group. Thank you all to the speakers.
01:12:56 --> 01:12:58: Think of you all. I for having us and I
01:12:58 --> 01:13:00: throw it back over to you allies.
01:13:00 --> 01:13:04: Wonderful leadership to take us into the networking.
01:13:04 --> 01:13:05: Thank you.

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