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 coalition of
00:05:59 --> 00:06:01: utilities like Pacific Gas and Electric.
00:06:01 --> 00:06:06: Manufacturers of heating equipment. The designing construction community,
00:06:06 --> 00:06:10: local governments and NGOs, all working together to eliminate emissions
00:06:10 --> 00:06:12: from the built environment.
00:06:12 --> 00:06:15: So just first of all on the big picture is
00:06:15 --> 00:06:17: you know what is building electrification.
00:06:17 --> 00:06:19: Just to really simplify it,
00:06:19 --> 00:06:22: it's taking some of the major end uses within our
00:06:22 --> 00:06:24: buildings that traditionally use gas,
00:06:24 --> 00:06:27: space heating, water heating, cooking,
00:06:27 --> 00:06:30: clothes drying and transitioning those over to electricity.
00:06:30 --> 00:06:35: And why? Electricity? Well, electricity is getting increasingly cleaner all
00:06:35 --> 00:06:37: across the United States.
00:06:37 --> 00:06:39: This is a map you see on the screen of
00:06:39 --> 00:06:42: all of the states that have adopted what are called

00:06:42 --> 00:06:47: renewable portfolio standards or renewable electricity 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 sending
00:10:26 --> 00:10:29: a very clear message within the Bay Area and across
00:10:29 --> 00:10:32: their territory that they do not want to be building
00:10:32 --> 00:10:36: out and providing gas to any new construction within their
00:10:36 --> 00:10:36: territory.
00:10:36 --> 00:10:40: Since Berkeley 41 other cities across California have adopted either
00:10:40 --> 00:10:43: a gas ban or similar restrictions to make it very
00:10:43 --> 00:10:46: hard to build with gas within their territory,
00:10:46 --> 00:10:49: you see a heavy concentration of them in the Bay
00:10:49 --> 00:10:49: Area,
00:10:49 --> 00:10:52: but we're starting to see it expand to other parts
00:10:52 --> 00:10:53: of the state,
00:10:53 --> 00:10:56: and this looks like San Diego is going to try
00:10:56 --> 00:10:58: to move forward by the end of the year and
00:10:58 --> 00:11:01: a number of cities in LA County as well.
00:11:01 --> 00:11:04: We have about 60 more cities that are looking about
00:11:04 --> 00:11:07: adopting these local policies moving forward.
00:11:07 --> 00:11:09: The ones in the Bay Area I was asked to
00:11:09 --> 00:11:11: give some generalities about them.
00:11:11 --> 00:11:14: What I would say is most of the ones adopted
00:11:14 --> 00:11:15: across the Bay Area,
00:11:15 --> 00:11:19: our whole building approaches so they say overall we want
00:11:19 --> 00:11:22: the entire building to be all electric rather than focusing
00:11:22 --> 00:11:25: on a specific end use like water heating or space
00:11:25 --> 00:11:29: heating, and many of them cover all building types and
00:11:29 --> 00:11:32: the majors and the large cities within the Bay Area
00:11:32 --> 00:11:33: such as San Francisco,
00:11:33 --> 00:11:36: Oakland, San Jose, cover all building types.
00:11:36 --> 00:11:39: Some of them, particularly in Silicon Valley.
00:11:39 --> 00:11:41: Did exempt certain building types,
00:11:41 --> 00:11:44: restaurants and life sciences were two of the areas that
00:11:44 --> 00:11:46: were heavily exempted at the coalition.
00:11:46 --> 00:11:48: We track all of these and we have a fantastic

00:11:48 --> 00:11:52: spreadsheet that lays out the differences between each and 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 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 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 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 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

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
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 overseas 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

00:18:40 --> 00:18:41: Corporation,

00:18:41 --> 00:18:44: one of the largest affordable housing developers in San Francisco,

00:18:44 --> 00:18:47: and she overseas about three and a half million square

00:18:47 --> 00:18:51: feet of space and a sustainability program that overseas all

00:18:51 --> 00:18:51: of them.

00:18:51 --> 00:18:53: She, too, is in charge of energy,

00:18:53 --> 00:18:55: water, carbon reduction, waste diversion,

00:18:55 --> 00:18:59: and she leads decarbonization o'll decarbonization sustainable design efforts at

00:18:59 --> 00:19:02: the Tenderloin Neighborhood Development Corporation.

00:19:02 --> 00:19:04: So thank you for joining us.

00:19:04 --> 00:19:08: She, Megan, Gunther again the alphabet behind early day PBD&C

00:19:08 --> 00:19:10: well April well AP.

00:19:10 --> 00:19:12: I mean, all of it.

00:19:12 --> 00:19:16: Megan leads the building decarbonization building performance group for AEI

00:19:16 --> 00:19:17: San Francisco office.

00:19:17 --> 00:19:20: Ann is a mechanical engineer with expertise,

00:19:20 --> 00:19:23: an analysis, engineering and design of mechanical systems,

00:19:23 --> 00:19:27: supporting laboratories, health care, and higher education laboratories,

00:19:27 --> 00:19:29: health care and higher education.

00:19:29 --> 00:19:32: So Megan only works on the most difficult of building

00:19:32 --> 00:19:32: types.

00:19:32 --> 00:19:36: Nothing using nothing is like a square warehouse for Megan.

00:19:36 --> 00:19:38: This is like the complicated stuff she leaves.

00:19:38 --> 00:19:42: Decarbonization and sustainable design efforts and provide support for all

00:19:43 --> 00:19:44: electric new developments.

00:19:44 --> 00:19:47: And rehab projects. And last but not least,

00:19:47 --> 00:19:49: we have the the boy on the on the panel.

00:19:49 --> 00:19:52: We have Barry Hooper the winner only.

00:19:52 --> 00:19:55: He's a green building coordinator at San Francisco and Department

00:19:55 --> 00:19:58: of Environment where he manage is implementation of the city's

00:19:59 --> 00:20:00: building performance,

00:20:00 --> 00:20:03: labeling energy audit requirements for commercial buildings.

00:20:03 --> 00:20:06: He's a department lead for San Francisco's Green Building

code
00:20:06 --> 00:20:10: for new construction and provides Technical Support to the Department
00:20:10 --> 00:20:11: 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 problems
00:23:41 --> 00:23:42: that are really real.
00:23:42 --> 00:23:44: These things can get on.
00:23:44 --> 00:23:47: I'm sure Megan, who's actually mechanical engineer,
00:23:47 --> 00:23:48: can get this a lot faster,
00:23:48 --> 00:23:51: but the issues are not as as difficult,
00:23:51 --> 00:23:53: but just as recently as this past was,
00:23:53 --> 00:23:55: you know, less than a few months ago I was
00:23:56 --> 00:23:58: leading at least threaten said alright guys.
00:23:58 --> 00:24:01: And the other thing they be done with this lead
00:24:01 --> 00:24:02: scorecard.
00:24:02 --> 00:24:05: Disability needs to electric and everybody went can.
00:24:05 --> 00:24:07: Oh my gosh, it's gonna be this whole thing.
00:24:07 --> 00:24:09: I don't. Oh my gosh,
00:24:09 --> 00:24:11: and you know I'm getting all these emails like you've
00:24:11 --> 00:24:13: caused a lot of conversations internally.
00:24:13 --> 00:24:15: I don't think we can do this and this isn't
00:24:15 --> 00:24:16: going to happen.
00:24:16 --> 00:24:18: I called him as I always do like Panama and
00:24:18 --> 00:24:20: we have to go talk to these people and then
00:24:20 --> 00:24:22: they stop responding to my emails,
00:24:22 --> 00:24:23: which is always a concern.
00:24:23 --> 00:24:25: And then you know, a couple weeks later I was
00:24:25 --> 00:24:26: like hey,
00:24:26 --> 00:24:29: if we. Figured out this electric building thing and they're
00:24:29 --> 00:24:30: like,
00:24:30 --> 00:24:32: oh, actually, when we ran the numbers it was totally
00:24:32 --> 00:24:33: fine.
00:24:33 --> 00:24:35: So the reason we haven't even back as we just
00:24:35 --> 00:24:37: did did that thing you wanted.

00:24:37 --> 00:24:38: That's fine. The real issue is this.
00:24:38 --> 00:24:41: 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 stoves,
00:25:15 --> 00:25:17: but it's a thing that we're going to have to
00:25:17 --> 00:25:18: get over,
00:25:18 --> 00:25:20: but I think as soon as we get there is
00:25:20 --> 00:25:22: going to be fine and I will only say is
00:25:22 --> 00:25:25: the end of this anecdote that my husband for figuring
00:25:25 --> 00:25:27: out how to needing to replace our stove has finally
00:25:27 --> 00:25:28: agreed.
00:25:28 --> 00:25:30: We won't get another gas stove.
00:25:30 --> 00:25:33: He's actually OS most enough of the Kool Aid on
00:25:33 --> 00:25:33: this one.
00:25:33 --> 00:25:36: And we're also going to be walking the walk,
00:25:36 --> 00:25:39: so I'm excited. I think that I think the barriers
00:25:39 --> 00:25:42: are less than they seem in commercial,
00:25:42 --> 00:25:44: and with that I'll turn it back to the home
00:25:44 --> 00:25:45: and great,
00:25:45 --> 00:25:47: I got one more question for you,
00:25:47 --> 00:25:50: Sir. You mentioned cost briefly and it's always a silly
00:25:50 --> 00:25:51: questions,
00:25:51 --> 00:25:54: like how much does a building cost to build,
00:25:54 --> 00:25:57: but but in general, what are you seeing on cost?
00:25:57 --> 00:25:59: Both new construction and operational and?

00:25:59 --> 00:26:02: Trends are building all electric.
00:26:02 --> 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 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 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 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 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 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 an 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 an 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 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 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 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 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 electrification in

00:51:33 --> 00:51:35: new construction quite recently,

00:51:35 --> 00:51:39: and he really asked for input on taking that next

00:51:39 --> 00:51:40: step and concurrently,

00:51:40 --> 00:51:44: Mayor Breed had back at the global Climate Action Summit

00:51:44 --> 00:51:48: a couple of years ago made a commitment to ensure

00:51:48 --> 00:51:51: that San Francisco buildings would.

00:51:51 --> 00:51:53: The new construction, would it?

00:51:53 --> 00:51:56: Be able to operate with no missions no later than

00:51:56 --> 00:51:56: 2030,

00:51:56 --> 00:52:00: and then we'd achieve the same in existing buildings throughout

00:52:00 --> 00:52:04: the community by 2050 and associ having made that commitment,

00:52:04 --> 00:52:07: then wanted to ask stakeholders how are we going to

00:52:07 --> 00:52:08: get that done?

00:52:08 --> 00:52:11: Like what is an inclusive path and practical path to

00:52:11 --> 00:52:15: meeting our mission reduction responsibilities and that led to the

00:52:15 --> 00:52:19: formation of a 0 mission Buildings Task Force which broke

00:52:19 --> 00:52:22: the question down into smaller components so we had a

00:52:22 --> 00:52:25: one word group specifically looking at new construction.

00:52:25 --> 00:52:27: To directly inform this ordinance.

00:52:27 --> 00:52:31: And three other working groups looking at existing municipal buildings

00:52:31 --> 00:52:33: and the challenges they face.

00:52:33 --> 00:52:36: The largest existing commercial buildings and the particular technical and

00:52:37 --> 00:52:38: financial challenges they face.

00:52:38 --> 00:52:41: And then existing residential which is.

00:52:41 --> 00:52:45: Covers a lot of situations in a city's biggest SF

00:52:45 --> 00:52:49: and really the the transition has to lead with equity

00:52:49 --> 00:52:51: and focus on a just transition.

00:52:51 --> 00:52:55: And so the whole focus on existing residential.

00:52:55 --> 00:52:59: Centered those two values and was led by community partners

00:52:59 --> 00:53:01: with support from department.

00:53:01 --> 00:53:06: And so it was interesting in bringing together those different

00:53:06 --> 00:53:10: groups and having parallel conversations on a related topic.

00:53:10 --> 00:53:12: Is there were some some commonality's.

00:53:12 --> 00:53:16: So for new construction to answer actually answer question,

00:53:16 --> 00:53:20: you know a four major main findings were it's important

00:53:20 --> 00:53:24: 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 buildings,
00:53:43 --> 00:53:47: and and including developers with small infill projects.
00:53:47 --> 00:53:51: And you know that there was a concurrence that just
00:53:51 --> 00:53:53: makes sense to move forward,
00:53:53 --> 00:53:57: that it was helpful to recognize that health and well
00:53:57 --> 00:54:01: being and resilience all pointed in the same direction.
00:54:01 --> 00:54:03: Who is it? A lot of call for the city
00:54:03 --> 00:54:07: to communicate about this more clearly to send it unambiguous.
00:54:07 --> 00:54:10: Signal that we're going to make the transition.
00:54:10 --> 00:54:12: So the question needs to shift to how,
00:54:12 --> 00:54:17: rather than whether an that the workforce.
00:54:17 --> 00:54:18: Has a lot of strengths,
00:54:18 --> 00:54:22: but overall you know this actually is new and there's
00:54:22 --> 00:54:27: need for supporting their readiness for delivering on this transition,
00:54:27 --> 00:54:30: and new construction is a good place to start.
00:54:30 --> 00:54:35: Just given the starting point of relative complexity and a
00:54:35 --> 00:54:36: relatively clean slate.
00:54:36 --> 00:54:41: So building new construction projects will help expand workforce readiness
00:54:42 --> 00:54:46: to tackle the more complex problems in existing buildings.
00:54:48 --> 00:54:52: So yeah, it was not Kumbaya necessarily,
00:54:52 --> 00:54:55: but it definitely was a.
00:54:55 --> 00:54:59: Yep, an effective way to build a lot of buy
00:54:59 --> 00:55:03: in among people who didn't necessarily come to the table
00:55:04 --> 00:55:06: expecting to support the outcome.
00:55:06 --> 00:55:08: Great good job. Mr Anna.
00:55:08 --> 00:55:13: Good process. I'm wonderful that was the questions from you
00:55:13 --> 00:55:14: a lie to the speakers.
00:55:14 --> 00:55:17: I think we now go to ULI members for the
00:55:17 --> 00:55:17: speakers.
00:55:17 --> 00:55:20: I believe we still do have around the panel is
00:55:20 --> 00:55:24: going to go until 5:10 and then the networking will
00:55:24 --> 00:55:27: start and we'll go do the networking until 5:25 so
00:55:27 --> 00:55:30: 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 become more.
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 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 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 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 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 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 is 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 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 building
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 tenant
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.
