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STATE of CALIFORNIA
CALIFORNIA ENERGY COMMISSION

In the Matter of:) Docket No. 21-IEPR-06
)
)
2021 Integrated Energy) Re: Building
Policy Report (2021 IEPR)) Decarbonization,
) Consumers, Financing
_____) and Workforce

IEPR COMMISSIONER WORKSHOP ON BUILDING
DECARBONIZATION - CONSUMERS, FINANCING, AND WORKFORCE

REMOTE ACCESS ONLY

TUESDAY, JULY 13, 2021
SESSION 3 OF 3: Decarbonization and Workforce
9:00 A.M

Reported By:
Martha Nelson

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Siva Gunda, Commissioner CEC
Genevieve Shiroma, Commissioner, California Public
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Derek Chernow, Executive Director, California Alternative
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Presenters

Tony G. Reames, Department of Energy
Sarah White, Governor's Office of Planning and Research

Panel Members:

Panel: Workforce Needs and Opportunities
Moderator: Gabriel Taylor, CEC

David Roland-Holst, U.C. Berkeley
Philip Jordan, BW Research Partnership
Neha Bazaj, Emerald Cities Collaborative
Cori Jackson, U.C. Davis

APPEARANCES (Cont.)

Panel Members: (Cont.)

Panel: Current and Future Workforce and Training Ecosystem
Moderator: Shrayas Jatkar, California Workforce Development Board

Julia Hatton, Rising Sun Center for Opportunity
Randy Young, Sheet Metal Workers Local 104

Public Comment:

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1 P R O C E E D I N G S

2 JULY 13, 2021

9:00 a.m.

3 (On the record at 9:00 a.m.)

4 MS. RAITT: All right, good morning everybody.

5 Welcome to today's 2021 IEPR Commissioner Workshop on
6 Building Decarbonization: Consumers, Financing, and
7 Workforce. I'm Heather Raitt the Program Manager for the
8 Integrated Energy Policy Report, or the IEPR.

9 This workshop is being held remotely consistent
10 with Executive Order N-08-21 to continue to help California
11 respond to, recover from, and mitigate the impacts of the
12 COVID-19 pandemic.

13 The public can participate in the workshop
14 consistent with the direction in the Executive Order. This
15 workshop is being held over two days. Yesterday we had the
16 first two sessions, and this is the third and final
17 session.

18 To follow-along the schedule, and slide decks are
19 posted on the CEC's website. All IEPR workshops are
20 recorded and both a written and audio recording will be
21 linked on the Energy Commission's website.

22 Attendees have the opportunity to participate
23 today in a few different ways. For those joining through
24 the online Zoom platform, the Q&A feature is available for
25 you to submit questions. You may also upvote a question

1 submitted by someone else. To do that click the thumbs-up
2 icon. Questions with the most upvotes are moved to the top
3 of the queue. So we'll be taking some questions after each
4 of the panels today. We'll reserve a few minutes to do so.
5 We may not have time to respond to all questions submitted
6 through the Q&A.

7 Alternatively, attendees may make comments during
8 the public comment period at the end of the morning.
9 Please note that we will not be responding to questions
10 during that public comment period.

11 Written comments are also welcome and
12 instructions for doing so are in the workshop notice.
13 Written comments are due on July 27th.

14 And with that I'll turn it over to Commissioner
15 Andrew McAllister for opening remarks. Thank you,
16 Commissioner.

17 COMMISSIONER MCALLISTER: Thank you, Heather.

18 It's a pleasure to be here and I'm really
19 gratified to be hosting the second day of our building
20 decarbonization workshop series. And first of all I want
21 to just thank you and your team and the Division staffs
22 from the Efficiency Division primarily for today and
23 yesterday, and for last week the Assessments Division. We
24 also had two days of workshops, very productive workshops
25 on reliability of our electricity and gas systems. So I

1 just wanted to acknowledge the marathon of workshops that
2 we've been having lately and just really express gratitude
3 to you and your team for all the work that goes behind
4 these. They come off seamlessly and that's because of your
5 professionalism and just incredibly high level of
6 competence, so thank you.

7 So today, we're wrapping up our series on
8 decarbonization. Yesterday we did consumer perspectives in
9 the morning and financing in the afternoon, both very
10 substantive. And I think we've been taking pains all along
11 really throughout the IEPR cycle and throughout the
12 Commission really to make equity and inclusiveness a
13 centerpiece of everything we're doing in our energy
14 transition work at the Commission and really across the
15 agencies. And you'll see that again today.

16 So I want to acknowledge all of the attendees,
17 good attendance today as well, and hopefully some good
18 participation from our attendees. And an expression of how
19 important this issue is, is the fact that we have on the
20 dais some counterparts from our sister agencies.

21 I want to acknowledge Commissioner Genevieve
22 Shiroma from the PUC is here with us, thank you very much.
23 And Derek Chernow who is here from CAEATFA who joined us
24 for the entire day yesterday, and welcome again today
25 Derek. And my colleagues at the Energy Commission,

1 Commissioner Siva Gunda and Commissioner Patty Monahan, so
2 thanks to both of you for being here as well.

3 So with that I wanted to just high-level express
4 we know that buildings are key to our decarbonization
5 journey and in a number of ways, in an increasingly broad
6 number of ways, in multiple ways. So, of course, they have
7 emissions themselves. So it can be electricity that they
8 consume, that consumed within them, and the gas that is
9 consumed directly onsite in our buildings. So those are
10 direct emissions.

11 Buildings are also evolving to be key parts of
12 grid stability and reliability. And so the smarts, the
13 temporal variation in their consumption, the platform that
14 they are for all of the various things that humans do. We
15 spend most of our times in and around buildings, and they
16 really are the locus of human activity. And so there's a
17 very large and growing kind of appreciation of the
18 behavioral aspects around buildings.

19 And so luckily, we live in the 21st century. Our
20 economy is largely digitized and that brings all sorts of
21 new tools to the table. And those tools have to be
22 utilized properly and installed properly. And the level of
23 competence of the workforce has to be there in order to
24 really realize all these potential decarbonization
25 benefits.

1 So if we look at equity, decarbonization and
2 equity in our buildings and our workforce, a lot of things
3 are going to have to work in synchronicity to leverage, to
4 realize all these potential benefits. So there are huge
5 potential benefits.

6 But as we grow our electricity consumption, as we
7 double or even triple it over the next coming decades we
8 really have -- I think it's imperative that we have to get
9 the projects right. We have to install the most efficient
10 equipment, and equipment that can relate directly to the
11 grid. That can be grid interactive in the full sense of
12 the word. And so these technologies require a trained,
13 highly competent workforce that's inclusive.

14 Yesterday we talked about the communities
15 throughout the state. We have an incredibly diverse state.
16 And each of those communities needs to be engaged directly
17 in a substantive way. The context varies tremendously
18 across our big, beautiful, diverse state of 40 million
19 people and many, many dozens of cultures and languages.
20 And an incredible array of economic diversity, large
21 inequities, large challenges. But we have to find ways to
22 be inclusive.

23 So I'm spewing out a lot of interrelated things,
24 but I think that partly what ties it all together is the
25 workforce. Customers aren't the experts. It's going to

1 have to be that it touches with the workforce, the
2 contractor community and local community leaders that work
3 together to get good projects done across the state.

4 So with that I think we're going to talk about a
5 lot of these issues today. I really invite my colleagues
6 on the dais to ask all the questions they can. So we have
7 some great moderators today. And also we have Tony Reames
8 from the Department of Energy who's going to help kick us
9 off.

10 I really appreciate the engagement at the federal
11 level now with the Biden Administration. There's such good
12 alignment between what we're trying to do in California and
13 the vision that the Biden Administration has for our
14 buildings going forward and really a great, great synergy
15 there.

16 So I'm very much looking forward to today, and
17 with that I'll pass it to Heather to get us started with
18 our presentation from Tony Reames from the Department of
19 Energy. But thanks everyone, for being here today.

20 Well, actually I don't want to neglect my
21 colleagues on the dais. If anyone has some opening comments
22 they'd like to make. Commissioners Gunda, not sure if a
23 Commissioner Monahan is with us quite yet, or Commissioner
24 Shiroma or Derek Chernow.

25 COMMISSIONER GUNDA: Yes, I will just add one

1 small thing there. I was happy to go to the keynote, but
2 I'm just going to use the time. I think I really wanted to
3 take the opportunity to just thank you and appreciate your
4 leadership on this.

5 I think the work that you kicked off last year in
6 3232, the building codes that we are working on, and then
7 more broadly the LMS work that you're trying to develop,
8 load management standards. I think really underpins the
9 future for the state in terms of really giving all the
10 tools to decarbonize the buildings.

11 And, you know, at CPUC Commissioner Shiroma has
12 been taking lead on a number of these things and I'm just
13 incredibly thankful for the partnership between the two
14 agencies. And great to be on the dais with Derek the last
15 day. It's wonderful to make his acquaintance as well.

16 So I think to your point, Commission McAllister,
17 I think the needs for electrification were well established
18 yesterday. I think that needs for equity were well
19 established yesterday. And I wanted to just raise a couple
20 things that we heard yesterday as we conclude today, which
21 is from a consumer perspective on equity there has been a
22 real ask for de-siloing the programs and improving the
23 integratedness and comprehensiveness of thinking through
24 solutions holistically to both a skilled (indiscernible)
25 that would also reduce the overall costs.

1 We talked about benefits of reporting in kind of
2 an overarching comprehensive way, rather than a siloed
3 fashion. And then we still kind of think through -- you
4 know, not just think through some of the parts
5 individually, but as a whole was a key discussion point
6 yesterday.

7 We also heard a little bit about the
8 opportunities with non-energy benefits and how do we model
9 it and how difficult it is. And just the acknowledgement
10 it's very difficult, but we need to do it.

11 And there was the idea of financing about how do
12 we increase the power of financing, make it more diverse to
13 move these comprehensive solutions forward. So I think a
14 lot of interesting ideas came yesterday, and thanks to the
15 panelists yesterday for all their thoughtfulness in
16 providing this information.

17 So with that I'm just looking forward to the rest
18 of the day today. And then I think workforce is an
19 important element. And I know I'm familiar with the number
20 of colleagues that are going to speak today and just
21 looking forward to hearing their thoughts.

22 COMMISSIONER MCALLISTER: Great.

23 Commissioner Shiroma, would you like to kick us
24 off with some comments?

25 COMMISSIONER SHIROMA: Yes, yes, thank you. I

1 also want to echo thanks to you, Commissioner McAllister,
2 on your leadership on building decarbonization and this
3 very important workforce discussion.

4 It's a pleasure to join you Commissioner Gunda,
5 Commissioner Monahan, and Executive Director Derek Chernow
6 from our Treasurer's Office. We will learn together about
7 the needs of California's workforce, their essential role
8 in this effort.

9 Although I could not join yesterday's workshop on
10 financing decarbonization my team attended and reported
11 back on the presentations and discussions. And as
12 Commissioner Gunda mentioned the dovetailing of the Energy
13 Commission and CPUC's financing efforts are really key to
14 the overall success. Building decarbonization requires
15 energy efficiency, financing of those investments, and
16 people-power to achieve our climate goals.

17 As the assigned Commissioner at the CPUC for
18 energy efficiency and clean-energy financing proceedings
19 I'm keenly interested in learning more about the impacts on
20 California's workforce, employment sectors, and the
21 creation of accessible high-quality jobs as we do strive to
22 achieve our very ambitious climate goals.

23 An important factor as we transition to
24 implementing building electrification initiatives is
25 equity, as was heavily discussed yesterday.

1 I'm also the assigned Commissioner for the
2 California Alternate Rates for Energy, the CARE Program,
3 the Family Electric Rate Assistance Program, or FERA, and
4 Energy Savings Assistance. These are our discount programs
5 for low-income customers. The ESA program provides at no
6 cost to customers, weatherization services, energy
7 efficiency measures, and energy education. We approved
8 recently \$11 billion for the CARE, FERA, ESA program. The
9 four large investor-owned utilities are looking to treat
10 over one million homes by the end of 2026.

11 In October of last year following Governor
12 Newsom's Executive Order to accelerate climate change
13 mitigations, building a more sustainable and inclusive
14 economy, the CPUC and the California Workforce Development
15 Board -- and we'll hear more from them later -- we executed
16 an MOU, a Memorandum of Understanding. To ensure
17 investments in clean energy and transportation
18 sustainability result in accessible, high-quality jobs and
19 greater access to career opportunities for disadvantaged
20 Californians.

21 The decision I mentioned previously, about the
22 \$11 billion investment also requires the investor owned
23 utilities to ensure additional workforce development
24 opportunities hiring within local communities. And
25 specifically in disadvantaged communities again, in

1 partnership with the California Workforce Development
2 Board's energy and climate jobs, initiatives, and community
3 colleges. We hope to really bring that to fruition in all
4 four corners of what we do beyond building decarbonization,
5 also vegetation management, transportation,
6 electrification, and so forth.

7 Overall I'm looking forward to today's discussion
8 to learn further what else can we do for education,
9 training opportunities, for the contractors, again creation
10 of high-quality jobs, accessible jobs, high-paying jobs.
11 And in particular in the rural, hard-to-reach,
12 disadvantaged communities.

13 Thank you. I look forward to the conversation
14 today.

15 COMMISSIONER MCALLISTER: Thank you so much,
16 Commissioner Shiroma. And thank you for your leadership in
17 all of those areas. It's so clear that we have many, many
18 bridges between us already and we can take advantage of
19 those to find solutions and implement them together so
20 thank you so, so much. And for being here today as well.

21 Executive Director, Derek Chernow, from the
22 California Alternative Energy and Advanced Transportation
23 Financing Authority, CAEATFA, would you care to make any
24 opening comments as well? Thanks again for being here.

25 EXECUTIVE DIRECTOR CHERNOW: Yeah, thank you.

1 And I'll just echo what the Commissioners have mentioned.
2 And it was exciting yesterday to hear the all-of-the-above
3 approach that California is taking in meeting our
4 decarbonization goals. And getting our residences and
5 office buildings to where they should be for energy
6 efficiency. And whether it's grants, incentives, loans,
7 leveraging the private sector, leveraging our public sector
8 dollars and expertise, it was really exciting to hear all
9 of the programs that are taking place and up and down the
10 state.

11 And I think looking forward it's important, I
12 think, for the participants to understand what you see here
13 over the past couple days is also a strong working
14 relationship between state agencies: between the PUC and
15 the Energy Commission, the Treasurer's Office, Workforce
16 Development Board. This is high on everybody's agenda.
17 It's high on everybody's agenda, both for the environmental
18 impact as well as for the economic and workforce impact.
19 So I'm thrilled to be part of this and looking forward to
20 hearing how we transition to this, our workforce into
21 meeting the job demands put forward as we decarbonize, so
22 thank you very much.

23 COMMISSIONER MCALLISTER: Thank you very much for
24 being here.

25 So without further ado, I wanted to pass it back

1 to Heather and introduce our morning keynote Tony Reames
2 from the Department of Energy. Thanks, Tony, for being
3 with us. Go ahead, Heather.

4
5 MS. RAITT: Okay, great. So Tony Reames is a
6 Senior Advisor in the Office of Economic Impacts and
7 Diversity at the Department of Energy. And previously Tony
8 was a Professor of Environment and Sustainability at the
9 University of Michigan where he established the Urban
10 Energy Justice Lab to conduct research and developed
11 solutions on the production and persistence of racial,
12 income, and geographic disparities in energy access,
13 affordability, decision-making, and participation.

14 Tony also served as a commissioned officer in the
15 U.S. Army Corps of Engineers and worked in both the private
16 and public sectors as a licensed professional engineer. So
17 we're very happy to have you here. Thanks for being here.
18 Go ahead.

19 MR. REAMES: All right, thank you so much,
20 Heather, for that introduction, and Commission McAllister
21 for your comments as well as the other Commissioners.

22 I'm excited to be with you all today. Just last
23 month this time, I was a professor at the University of
24 Michigan. And now in this role in the Department of Energy
25 in the Office of Economic Impact and Diversity providing

1 policy analysis, leadership on energy justice.

2 I just wanted to frame a little bit the role of
3 the Office of Economic Impact and Diversity before I jump
4 into the presentation. The Office was actually created
5 kind of coming out of the energy crisis in the 1970s, so a
6 statute created the Office of Minority Impacts in 1978. We
7 have kind of five key areas that we advise on within the
8 Department of Energy.

9 First, advising the Secretary on energy policies,
10 regulations and how those impact black, indigenous, and
11 communities of color. We have a relationship with the
12 Energy Information Administration to actually do research
13 and data collection on how energy policy affects
14 communities of color. And then offer policy
15 recommendations that are appropriate to relieve impacts on
16 communities of color. Continuous assessment of the
17 relationship between energy and communities of color. And
18 then work on technical assistance and job creation,
19 particularly for overburdened and underinvested
20 communities. Next slide, please.

21 So I think it's no surprise to anyone on this
22 call today that we are living in the United States of
23 Energy Insecurity. Diana Hernandez, a professor at
24 Columbia University, defines energy insecurity as the
25 inability to adequately meet a household's energy needs.

1 And it also includes these physical, economic, and
2 behavioral dimensions that can lead to or exacerbate
3 adverse health issues. Next slide, please.

4 And so we're all familiar with the challenges
5 that we face in our energy sector across the country, some
6 shared experiences and some that are very unique depending
7 on where you live. I was just without power for about four
8 days here in Michigan after we had a really heavy
9 windstorm. And so you know, energy insecurity is very real
10 to my mind and the work we're doing at the Department.

11 And so we know that millions of Americans are
12 racking up debt, whether it's in their utility bills for
13 energy or water. And as shut-off moratoriums come to an
14 end, how do we begin to address that issue? We all
15 remember what happened in Texas and California. And you
16 all have your own experiences with storms, and how that can
17 take out power for people. And how that impact is
18 disproportionate across low-income communities and
19 communities of color.

20 And we know that these energy challenges can also
21 be deadly. Here in Michigan when it gets really cold we
22 see experiences of people dying in their home, because they
23 can't keep their utilities on. And so I posted a story
24 here of a mother and son that were both found dead inside a
25 cold home. Next slide, please.

1 And so working with the U.S. Energy Information
2 Administration our last residential energy consumption
3 survey included questions on this issue of energy
4 insecurity, and we know that the 2020 version of that
5 survey will allow us to do additional analysis on the
6 challenges of energy insecurity across our country.

7 And so what we learned a few years ago is that
8 one in three household face some form of energy insecurity.
9 One in five households actually reduced or forwent basic
10 necessities like food and medicine just to be able to pay
11 their energy bills. Fourteen percent of households
12 reported receiving a disconnect notice. And eleven percent
13 of households kept their home at unhealthy temperatures,
14 whether too hot or too cold, just to be able to afford
15 their energy.

16 The graph on the right shows that these
17 disparities are not equal across populations, especially
18 when we look at race and ethnicity. And so we see black
19 households, Latinx households, Asian-American households,
20 Alaskan Native, Pacific Islander, and biracial households
21 are experiencing this at a much greater proportions than
22 just the average U.S. household. Next slide, please.

23 And we know that the pandemic worsened energy
24 insecurity. A study out of Indiana University found that
25 at the height of the pandemic back in May of last year

1 disparities were growing in the experience of shut-off and
2 inability to pay household energy bills. And we saw groups
3 like people living in inefficient housing, which I think is
4 so important to the conversation today.

5 We're really experiencing this at greater levels
6 compared to those who have more efficient housing. Medical
7 people with medical devices, homes with children under
8 five, and again racial disparities. And kind of the
9 exacerbation of energy insecurity during the pandemic by
10 Hispanic, Latinx households, and black households. Next
11 slide, please.

12 And so there are these buckets of challenges, so
13 the affordability issue is caught up in a host of other
14 issues that we're trying to deal with: urban-rural divide,
15 challenges 2 infinity, institutional racism, economic
16 crisis, aging infrastructure, the climate crisis. Next
17 slide, please.

18 But our energy transition, while not a panacea,
19 it offers us some rays of hope, right? How do we begin to
20 address these challenges and address them in an equitable
21 way. Next slide, please.

22 And so our question at DOE, and what we're
23 dealing with in the Office of Economic Impact and
24 Diversity, is how do we simultaneously transform our energy
25 system, but at the same time ensure that our system is more

1 equitable and just? Next slide, please.

2 And so what is this just, equitable energy system
3 that we're thinking about? It's a system that fairly
4 disseminates both the benefits and cost of energy services.
5 And it also has representativeness and impartial decision-
6 making when it comes to all of these decisions that we're
7 going to need to make as we transition the system. Next
8 slide, please.

9 And so there are kind of four tenets to energy
10 justice. We have Recognition Justice, so recognizing the
11 various vulnerabilities of populations, which you all have
12 done in California with your disadvantaged communities
13 designations. Distributional Justice, really understanding
14 the challenges and how that is distributed across
15 populations. Procedural Justice, beginning to get people
16 engaged and involved in the process and making sure that
17 engagement is authentic. And then Corrective Justice, this
18 is where we create the policies and programs and procedures
19 that are equitable whether it's new solar for all programs,
20 engaging in energy democracy, rates that are based on
21 people's ability to actually afford them and pay for them.
22 Next slide, please.

23 And so we're really excited. So what are we
24 doing at the federal government when it comes to addressing
25 the issues of energy inequities? President Biden is

1 committed to environmental justice and really taken an
2 approach to address communities that have borne the burden
3 of our energy system, the burden of underinvestment. And
4 really say that we are going to take an equity-based
5 approach to investing in our communities.

6 And so with Executive Order 14008, Section 223
7 established the Justice 40 Initiative. This is a historic
8 initiative that is going to be a whole-of-government
9 approach to really address energy justice, environmental
10 justice, and climate justice at the same time while
11 centering our energy transition and the ambitions within
12 future appropriations, centering that around equity. Next
13 slide, please.

14 So what is Justice 40? The Justice 40 Initiative
15 says that 40 percent of overall benefits of certain federal
16 investments, most of them being climate and energy
17 investments, must flow to disadvantaged communities.

18 And so within those three buckets how are we
19 approaching this?

20 First, we have to identify how we measure and
21 track the benefits of Justice 40. How we define what
22 Justice 40 investments are. And then how we define who
23 disadvantaged communities are. And so each agency, and
24 particularly in DOE, we are going through this process now
25 looking to states and localities who have been doing this

1 work to really begin to define that across the country,
2 focused on federal investments. Next slide, please.

3 And so within DOE what are our kind of Justice 40
4 policy priorities when we think about the opportunities for
5 investment in disadvantaged communities. You know,
6 throughout our time what are some of the goals that we want
7 to establish? And so I talked about energy insecurity,
8 and so one primary goal is for us to really find ways that
9 we can reduce and decrease energy burdens in disadvantaged
10 communities.

11 Second, we want to create clean-energy technology
12 in storage, solar, other renewable energy, create parity
13 and increase clean-energy access in communities that have
14 not had that access.

15 We want to increase capital, low-cost capital in
16 disadvantaged communities, so they can participate in clean
17 energy and reduce energy burdens.

18 We also want to do enterprise creation. So how
19 do we find ways to accelerate minority businesses and
20 diverse businesses acceleration?

21 Increase clean-energy pipelines and job training.

22 Increase energy resiliency.

23 And then also get people engaged in the energy
24 transition. Next slide, please.

25 And so Justice 40 is our way to do that. It

1 provides a pathway for equitable deep decarbonization that
2 focuses on equitable deep decarbonization and hope that it
3 transforms and builds wealth in underserved and under-
4 burdened communities. Next slide, please.

5 And so what are some of the components to this
6 idea of equitable deep decarbonization, which I think are
7 important and key to the conversation you all have been
8 having yesterday and today? It is that we must look at
9 distributed clean energy and it must be done in an
10 equitable way. There is a role for utility scale energy,
11 and how to ensure that that type of investment actually
12 benefits the communities that utilities serve, focusing
13 heavily on making our buildings more efficient, both our
14 residential and commercial buildings.

15 How do we take a place-based approach to going
16 through communities and making our buildings as smart, as
17 clean, as efficient as possible? A focus on clean transit
18 and the role of clean transit to equitably push for
19 decarbonization.

20 Workforce development through new manufacturing,
21 through other investment in communities.

22 And then again, acceleration of minority business
23 enterprise, diverse business enterprises.

24 And then the goal, overarching goal of reducing
25 our greenhouse gas emissions and other co-pollutants. Next

1 slide, please.

2 And so how do we approach this? We're very
3 focused on an all-hands approach to this, a layered
4 community-centered place-based approach. We want people to
5 be able to see things happening in their communities. And
6 we know as a federal government we can't do that alone.
7 And so taking advantage of what we are good at and making
8 sure that's more equitable in both our research and
9 development, our technical assistance and deployment
10 support. And that includes working with our state and
11 local government partners to really get investment out of
12 the federal government into communities who can actually
13 distribute those funds. But then bringing in our partners
14 in the philanthropic organizations who are very good at
15 building community capacity, building enterprise capacity,
16 to supplement their activities with folks on the ground.

17 And we hope that all of this will unlock private
18 sector investment for the real long-term transformative
19 investment in communities. So how do we de-risk capital?
20 How do we support brand-new enterprises? And how do we get
21 our long-term private sector utilities and other companies
22 to invest in disadvantaged communities? Next slide,
23 please.

24 And so our approach to scaling energy justice, we
25 hope that it will support this idea of energy, justice and

1 democracy. It acknowledges that there are complex,
2 decision-making processes when it comes to energy. It
3 fosters a sense of social connectedness to transform the
4 way people consume and use energy. And then it'll create
5 kind of long-standing institutional capabilities.

6 You know, as political appointees we know we're
7 in the government for a short period of time and so we want
8 to institutionalize energy justice throughout the
9 Department of Energy, but also throughout the government.

10 Next slide, please.

11 So lastly, I just wanted to share with you all
12 that we have tried to increase accountability and
13 transparency. We have a BETA version of an Energy Justice
14 Dashboard that we would love for you all to check out. It
15 begins to show where investments from the Department of
16 Energy are distributed across the country. And we'll be
17 updating this as we do more metrics evaluation, but again a
18 way for people to see both where investment is going, and
19 for us to identify gaps of communities that aren't getting
20 investments. Next slide, please.

21 So thank you all for your time. Please feel free
22 to reach out to me, that's my contact information. And
23 I'll be open to take a few questions now, thank you.

24 COMMISSIONER MCALLISTER: Thank you so much,
25 Tony. That was great. We really appreciate your

1 leadership on this. And there's so many synergies, a lot
2 of mirroring going on between what we're trying to do in
3 California, much of what we heard yesterday on the consumer
4 and financing side. And so just really great, I was
5 getting goosebumps there for a second.

6 And the dashboard is great. I'm going to turn
7 our Public Advisor on to that and our media team. And I
8 think there's also some ways we can echo, amplify what
9 you're doing. And maybe the other way as well, because
10 we're doing some analogous things.

11 I guess I wanted to ask one question and then
12 I'll ask my colleagues on the dais. You know the points,
13 the sort of facets of all the things you're working on in
14 justice and energy justice absolutely ring true. And just
15 there's just immense, immense need. I guess I'm wondering
16 how you think about this in the context, even the broader
17 context of the history of redlining and sort of the
18 difficulty of engaging with the mortgage industry? And
19 kind of have those bigger levers may be at the federal
20 government that are where the real capital sits, maybe
21 could be used to assist and provide some tailwinds to this
22 effort that's more focused on climate and energy.

23 MR. REAMES: Yeah, that's a really great point.
24 You know, so there are things within our control and the
25 Department of Energy. But quickly, Shalanda Baker, the

1 Deputy Director of Energy Justice and the Secretary's
2 Advisor on Equity, realized that we can't do it alone and
3 be elite, right? And so she sits on an interagency
4 advisory council that has people from HUD, HHS, and FEMA
5 and all the other agencies.

6 And we're starting to break down those silos to
7 talk about how do we collaborate? How do we bring funds
8 together? How do we look at other policies and other
9 agencies to look for some of those pain points that can
10 cause the production and persistence of some of these
11 energy inequities? And so thinking about the relationship
12 between LIHEAP and HHS and weatherization and DOE, funding
13 from FEMA when it comes to disaster recovery.

14 And so it's really amazing that those
15 conversations are happening. And then the next thing is
16 how do we work with Congress to make sure we change
17 statutes that allow for these programs to work together
18 better?

19 COMMISSIONER MCALLISTER: Well, it's great to
20 know you're thinking about those things, and if we can help
21 in any way. They're obviously difficult problems, but I
22 think one persistent theme in conclusion that we're hearing
23 is that we're just not going to get to our carbon goals if
24 we don't make a lot of progress on these structural
25 inequities that really go well beyond energy and climate.

1 So again I think lots of ways, lots of reasons to build
2 relationships across agencies at all levels to collaborate
3 on these issues.

4 I wanted to see if any of my colleagues on the
5 dais --okay, Commissioner Shiroma and then Commissioner
6 Gunda.

7 COMMISSIONER SHIROMA: Thank you. Thank you so
8 much. That is really so gratifying to see the
9 Administration putting this effort together.

10 Will one of the first steps be to look at what
11 kind of best practices are already occurring at our
12 agencies? And I'm thinking about the Department of
13 Agriculture where I had a chance to visit a farmworker
14 housing, multifamily farmworker housing in Oxnard. And
15 their energy efficiency investments were funded by the
16 Federal Agricultural Department, which I hadn't realized it
17 was so heavily involved. But it has been for many, many
18 years. Because to change the hearts and minds of the
19 federal diaspora is a tall order, but to see where it's
20 been working already I would think would help change those
21 hearts and minds.

22 MR. REAMES: Yeah, that is a really great point.
23 Now we have a small group in our team that is looking
24 across different programs to identify some of those best
25 practices. And so what's happening in HUD with public

1 housing right? How can we ensure that housing is both
2 affordable, but it also is as efficient, and people in
3 multifamily housing have access to clean energy. And so
4 there are programs there.

5 As you all know a lot of things start out as
6 pilots and sometimes they fall off the radar and never get
7 scaled up. And so we're really trying to say well we've
8 done this, maybe during ARRA, and so how do we scale that
9 up now so we aren't starting from scratch? So a really
10 good point and I think we'll probably be releasing a report
11 hopefully soon, that kind of lays out some of the things
12 that we've found across federal departments.

13 COMMISSIONER GUNDA: Thank you, Commissioner
14 McAllister. I'll just add, and I think it's kind of a
15 high-level question, Dr. Reames. I just was going to thank
16 you for first of all your service and then doing this now.
17 This is great. I mean, I think I agree Commission
18 McAllister that it's just incredible to see your personal
19 journey as well as the work that you're trying to do.

20 So I had kind of a high-level question. You teed
21 up your presentation beginning with the energy insecurity
22 as kind of a definition. And more and more as I begin to
23 dive into this, we hear the lack of metrics that really
24 helps support what it really means. So you mentioned your
25 desire to kind of take an approach in defining benefits

1 more clearly. I just wanted to get your thoughts on it,
2 even evolving thoughts would be really helpful.

3 I mean, one of the things I was really kind of
4 surprised by is the level of energy that's being used by
5 low income is much, much lower right? I mean, they kind of
6 decrease their air conditioning to a higher level
7 typically, if you look at the entire nation, because of the
8 energy costs. But then it really can't even compare,
9 because of the redlining and the lack of trees in those
10 areas, so there's a double whammy there. And the help of
11 elderly, especially disadvantaged communities and low
12 income, so if you can talk about if there is efforts on
13 metrics or how we should tackle this?

14 MR. REAMES: Yeah, thank you for that question.
15 And I think you hit on one of the key issues, right? Just
16 the confluence of all of these challenges and trying to
17 just think about energy consumption right. And we know
18 that a lot of times low-income households, communities of
19 color, are consuming less energy, because they're cutting
20 back or curtailing. And that's why you see some of the
21 challenges like unhealthy temperatures, because people are
22 keeping their homes too hot or too cold. And so we have
23 some folks from the National Labs on loan to our office
24 that are helping us work through those models and thinking
25 about the data we have.

1 And then hopefully we can work with partners like
2 you all with some of the data we don't have. So we can
3 work with PUCs and Energy Commissions to get data from
4 utilities, get data from different states, so we can
5 increase our modeling capacity at the federal level.

6 And so we know modeling won't be easy. There's
7 always data challenges, but really creating a wish list and
8 hearing from folks like you on what you want us to help
9 push. Like I said, we have a mandate to work with the
10 Energy Information Administration. And so how can we help
11 craft the residential energy consumption survey that goes
12 out every year to include some of the questions to get at
13 metrics that everybody is concerned about.

14 COMMISSIONER GUNDA: That's wonderful to hear.
15 Thank you so much for being here.

16 MR. REAMES: Thank you.

17 COMMISSIONER MCALLISTER: Great (indiscernible)

18 EXECUTIVE DIRECTOR CHERNOW: Commissioner
19 McAllister? Sorry, if I can real quick, just in the
20 interest of time just a quick recognition to Tony and his
21 colleagues at the Department of Energy. At CAEATFA as we
22 look to expand, to get the Authority to expand our program
23 statewide, bring in additional sources of funding into our
24 programs, we've already been in discussions with the U.S.
25 Department of Energy who have shown incredible

1 accommodation to us and reached out to us. And hopefully
2 we get to that point, but just the collaboration between
3 the state and federal government now is incredible. And
4 we're looking forward to working with DOE moving forward on
5 a lot of our programs.

6 So thank you, Tony, and thank you to his
7 colleagues for their help moving forward.

8 MR. REAMES: Likewise, thank you all.

9 COMMISSIONER MCALLISTER: Thanks a lot. And one
10 observation, this came up a little bit yesterday, but just
11 the equity -- and this sort of goes to Commissioner Gunda's
12 point as well -- equity has so many facets and we're making
13 up for so much lost ground over decades and centuries.

14 And this idea, back in the day I did a bunch of
15 work at LBL, Berkeley Lab, and I did a bunch of work for
16 the Department of Housing and Urban Development. And a lot
17 of these same issues -- this was back in the early 90s -- a
18 lot of these same issues are still with us. And this idea
19 that as part of an upgrade of a low-income household
20 there's a lot of deferred maintenance, a lot of sort of
21 ancillary costs to doing that. And also there's the
22 possibility of providing them with air conditioning that
23 they didn't have before.

24 And so that sort of take-back effect, that they
25 call it in the academic literature, that actually could be

1 considered an equity fix. And so even though it can lead
2 to more energy consumption I think we have to believe, we
3 have to understand this broader context that people are
4 actually living in. And not see that as a bad thing,
5 actually see it as good thing, as addressing some equity
6 concerns.

7 And so I think as we're living climate change in
8 California just daily, heat waves and fires. And we had an
9 earthquake during the workshop the other day, we can't
10 forget about earthquakes. It's not content-related, but
11 still we have these long-term planning challenges in
12 California. We can't forget that. We can't leave behind
13 the equity imperative and forget to focus on that as well,
14 so anyway just another thing to take into account. And I
15 know you are doing that, so really appreciate it.

16 I mean your level of commitment just comes
17 through loud and clear as you talk about these issues. And
18 I just want to transmit to you and, through you, to the
19 rest of the administration team that we so appreciate what
20 you're doing. And the expertise and background and
21 commitment and passion that you all bring to these roles as
22 appointees, I mean, it's really tremendous that you stepped
23 up to the plate and are doing that. So thank you so, so
24 much for being with us today. And we want to collaborate
25 in any way possible going forward, so thanks again for

1 being here with us.

2 MR. REAMES: Yeah, thank you so much for the
3 invitation and it was really great joining you all. And
4 like I said please reach out and we will be doing the same.

5 COMMISSIONER MCALLISTER: Absolutely. Feel free
6 to stay on as long as you like. I know you're probably
7 busy.

8 All right, thank you again, Tony.

9 MR. REAMES: Thank you everybody.

10 COMMISSIONER MCALLISTER: Appreciate it, take
11 care.

12 All right, so back to you, Heather, to kick off
13 our next Panel on Workforce Needs and Opportunities.

14 MS. RAITT: Yeah, super. So Gabriel Taylor is a
15 Senior Engineer in the Energy Commission's Efficiency
16 Division and he will be moderating the panel. So go ahead,
17 Gabriel.

18 MR. TAYLOR: Good morning. Thank you, Heather.

19 And thank you very much Commissioners for your
20 engagement in this workshop. And thank you especially to
21 Tony Reames for joining us and representing the federal
22 government perspective. Obviously, the coordination
23 between California and the federal government is critical
24 to achieving our decarbonization goals.

25 So now we turn to a four-person panel to discuss

1 workforce needs and opportunities associated with
2 California's ambitious decarbonization goals.

3 We have four speakers today and I'll introduce
4 them one at a time. So first up is Dr. David Roland-Holst,
5 Professor in the Department of Agriculture and Resource
6 Economics at UC Berkeley. Dr. Roland-Holst.

7 MR. ROLAND-HOLST: Thank you, Gabriel. I'm not
8 sure if it's intentional, but my camera doesn't seem to be
9 working. I'm told by a little box here that it's because
10 it's been stopped by the host. Do you want to see me or
11 you don't want to see me? I'm fine with that.

12 MR. TAYLOR: Well, we'll have a host turn on your
13 camera in just a minute.

14 MR. ROLAND-HOLST: I'm agnostic about that.

15 MR. TAYLOR: Okay. We can hear you loud and
16 clear, please take it away.

17 MR. ROLAND-HOLST: That's great. Let me try the
18 video now.

19 MR. TAYLOR: Now the video is working.

20 MR. ROLAND-HOLST: All right, good morning,
21 everyone. And thank you to the Commission and the
22 Commissioners, in particular, for this new initiative and
23 really to achieve more robust, inclusive and transparent
24 policy dialogue and stakeholder engagement. It bodes very
25 well for a new generation of energy policy.

1 Time is very short so I'm going to confine myself
2 and my comments to the big picture, shall we say.

3 Fortunately, our panel includes leading experts who can
4 elaborate on the complexities of building technology and
5 workforce development, but I'm going to highlight three
6 salient issues for this specific category of building
7 decarb, but also for energy policy generally.

8 I'm going to talk about redefining the energy
9 paradigm in a kind of a conceptual way.

10 Then I want to talk about technology innovation,
11 adoption and policies, some challenges and opportunities
12 based on my own experience since the advent of the Global
13 Warming Solutions Act. I have been very close to a state
14 policy in California and marvel at California's leadership
15 in that area.

16 And then finally I'm going to talk about energy
17 savings and job creation. It's a very interesting and
18 important relationship there.

19 Because I'm an economist I'm going to look at
20 this in terms of supply and demand so please excuse me for
21 that, but I hope that it gives you one perspective. May I
22 have the next slide, please?

23 Okay, on the supply side of this energy paradigm
24 as I refer to it, basically we all know that renewable
25 energy delivers immense promise for GHG emission

1 mitigation. And that that's the primary reason it's part
2 of the state's climate policy. But it's also important to
3 recognize that it represents a new paradigm for energy
4 supply generally.

5 Conventional or fossil-fuel energy is an
6 exhaustible resource which is subject to ever-increasing
7 costs; whereas renewable energy is a boundless resource,
8 from our perspective at least, and it's subject only to a
9 technology constraint. Of course, that's something we're
10 pretty good at so it really gives us a different way of
11 looking at energy supply and innovation, which is something
12 I really want to emphasize today. Next slide, please.

13 Here are some of the early returns on this, and
14 very recent returns. This is auction data on renewable
15 energy prices. And as you can see, you're all aware that
16 costs have been plummeting in most renewable categories.
17 Most recently batteries, but solar and wind have been
18 falling very consistently and significantly over the last
19 decade. Now they're crashing through the band there, that
20 beige band of carbon prices, and this is without even
21 taking account of the handicaps with no recognition of the
22 social costs of carbon or subsidies.

23 So what we see here is very clear evidence that
24 innovation is changing the nature of the energy system on
25 the supply side. Next slide, please.

1 The significance of that can best be seen on the
2 demand side. And on that side, although I'm a reverent
3 student, a disciple of the patron saint of energy
4 efficiency, Art Rosenfeld, I have to say as a physicist, he
5 was focused on the physical side of efficiency and the old
6 prudential idea of getting more from less. But I think as
7 an economist I really want to emphasize that energy itself
8 is not the social problem. And what really is the
9 challenge for us is the environmental and economic cost of
10 energy.

11 We're addressing that by decarbonizing on the
12 environmental side. But we also have technologies that we
13 can promote, which will save energy in a more general way.
14 And that is they'll save money on energy services. So I'd
15 like to think about efficiency and I do think about
16 efficiency in terms of the economic cost of energy
17 services, not simply the amount of energy that's consumed.

18 I guess, for an analogy, your grandparents used
19 to tell you that saving us a virtuous thing and of course
20 it is. But investment is also very important to our
21 future. And there are new ways to save through Social
22 Security and things like that, so we need a broader vision
23 of how to secure our access to energy.

24 And renewable technologies are demonstrating a
25 new pathway for essentially defining efficiency in terms of

1 lower costs for the same amount of energy services or even
2 more energy services for the same cost. Next slide,
3 please.

4 Why is that important? It's important for a very
5 simple reason. We have to concede this. The data makes it
6 very clear that energy is one of the bedrock, the sources
7 for prosperity.

8 This is a diagram one of my grad students calls
9 the devil's bubble bath. On the X-axis we have Per Capita
10 Income. So rich countries are on the right and lower-
11 income countries are on the left. The vertical axis is Per
12 Capita Energy Consumption.

13 And as you can imagine the U.S. is the world's
14 undisputed leader in that category. It's a dubious
15 distinction. But then all of the wealthy countries are in
16 the upper quadrant of that diagram for a very simple
17 reason, that energy underwrites our prosperity. It's given
18 us, since the Industrial Revolution when we originally
19 domesticated carbon fuels for more general use, it's
20 conferred living standards that were beyond the imagining
21 of our ancestors. And we all understand that, I think.

22 So it's really important to accept the fact that
23 energy is necessary and allow, particularly, our developing
24 partner countries, especially those two very large bubbles
25 -- the bubbles are proportionate to the population size, by

1 the way -- to achieve living standards that more closely
2 resemble our own. I mean, it's clear that climate equity
3 and energy equity are a global issue. And we're really
4 going to have to find ways to make energy accessible on a
5 much more equal basis within the state, within the nation,
6 and globally. Next slide, please.

7 Okay, in terms of technology policy and energy,
8 what can we do? I mean, California again has a really
9 laudible history for promoting this. And it's one reason
10 why we are the home of so many innovative industries. But
11 the enabling policy environment, I think, can recognize the
12 essential mission which is to correct market distortions.
13 And that basically means gaps between private and social
14 costs and benefits. I'm sure you all understand that.

15 And then evidence-based policy, and here the CEC
16 I think should be very proud of its leadership through the
17 PIER program and other funding and research.

18 Today's economy is so complex that relying on
19 rules of thumb and intuition alone will never achieve
20 anything approaching optimality, so funding, more intensive
21 research, discovery and better public information for
22 decision-making is a really important companion to this.
23 So evidence-based policy and policy that enables
24 innovation, I think, are the primary objectives.

25 And how do incentives work? Well again

1 California's got some great examples. We've relied on
2 standards many times. Art Rosenfeld has made energy
3 efficiency famous with his examples from electric
4 appliances. But here's the underlying dynamic that makes
5 it so successful in California. Every time California
6 establishes a technology standard, it creates an incubator
7 the size of the world's fifth largest economy. The venture
8 community understands this. So when we did pass AB 32 and
9 we created a Cap and Trade system and put a price on
10 carbon, it triggered hundreds of millions of dollars or
11 billions of dollars' worth of private, complementary
12 investments.

13 And clean energy is, I mean, the venture
14 community understands this. It's one reason they're so
15 excited about climate policy in California and elsewhere,
16 because clean energy is the next breakout knowledge-
17 intensive sector following IT and biotech. And by
18 incubating that in this state they know they can create
19 competitive advantages for a global market that is already
20 explosive.

21 Subsidies and fees, they're okay, they're fine.
22 But at the same time we have to be very careful with those
23 that we create. We don't pick winners and losers too
24 specifically, but simply correct for existing distortions.
25 Next slide, please.

1 Okay in terms of demand, on the demand side of
2 implications for policy this is a little bit more
3 complicated. And I've heard some really constructive
4 discussion today and again, California is leading the way
5 in this. But technology adoption, right? This is about
6 human behavior which is fiendishly difficult. I've got to
7 tell you that my profession, the landscape of my profession
8 in economics is littered with the bones of people who tried
9 to predict the adoption behavior, it's extremely difficult.
10 And the private sector should really bear those risks.
11 There will be the Apples, there will be the failures, there
12 will be the Teslas. There'll be everything in between.
13 But those risks I don't really feel they are appropriate to
14 assume as a public responsibility.

15 However, there are some very important and grave
16 responsibilities for the public interest and that mainly
17 has to do, I think, with equity. Large commercial property
18 owners can certainly lead with innovative investments in
19 building decarb, and they should do. But they will be less
20 labor-intensive in their approaches.

21 Whereas, small enterprises and households,
22 because they face higher costs of capital and other
23 financial constraints, will find adoption more challenging.
24 And this is where a whole suite of complementary policies
25 are already being considered, I know, and I really hope

1 that they'll be advanced.

2 But remember too that it's not just for the sake
3 of equity among the among the adopters, it also creates a
4 different kind of opportunity in the labor markets for
5 local employment, for more labor-intensive employment, in
6 installation, operation and maintenance. All of those
7 solutions are going to be more diversified and
8 geographically, and I think also institutionally across
9 smaller and smaller enterprise. In the residential space
10 this again gets very complicated because of the behavior.

11 It's essential that we recognize affordability
12 constraints, absolutely essential. Otherwise, as several
13 of our speakers this morning have already observed we're
14 not going to get to our goals. Our goals are very
15 ambitious and we need to mitigate emissions by everybody,
16 but we can't do that without an inclusive approach.

17 Look at the situation with electric vehicles. I
18 mean I've worked a lot on electric vehicles. I'm still
19 very optimistic about electrification of the vehicle fleet.
20 But we know that results in the last decade have been
21 disappointing. I think that's going to change. I think
22 we're at a real inflection point right now. But still low-
23 income households can't afford these innovative vehicle
24 technologies in the present circumstances. And they have
25 to face the same constraints with large appliances, but

1 even more difficult with things like infrastructure
2 investments on the residential side. We have to recognize
3 the distinction between tenants and landlords, because
4 landlords often make those adoption decisions for the
5 occupants. And the incentive programs have to recognize
6 that heterogeneity. Next slide, please.

7 Here's an example of heterogeneity. This is some
8 work that I did for the Commission and we've developed
9 economic modeling that goes down to the DAC level, so we
10 have very high granularity in our impact assessment.

11 The upper one looks at public health costs. I'm
12 sure that you're aware that air quality is still a very
13 significant challenge in the golden state. And it's also a
14 very important equity challenge. But on a large scale, I
15 mean I'm not sure how many people realize that air quality
16 kills more people globally every year than COVID has done
17 this year. Last year 4.2 million people died from
18 respiratory related-illnesses from poor air quality
19 globally. COVID is catching up, but it's not there yet.
20 It just traveled over the 4 million mark. But this is
21 every year that we still face this mortality. In
22 California, although its standards are much higher on
23 average, it still has some very important challenges
24 locally.

25 To identify these things we really need to think

1 about complementary policies that can support the sort of
2 larger scale mitigation objectives.

3 And as I was saying we've also found that our job
4 creation, this is research we did on the long-term energy
5 strategy for CEC about three years ago. And what we
6 discovered is that the buildout itself actually creates a
7 disproportionately large number of jobs in disadvantaged
8 communities, because those are semi-skilled construction
9 related jobs. So this can be a more inclusive process,
10 decarbonization, as long as we're very deliberate about how
11 we target policies. Next slide, please.

12 Okay now I'm going to get to a more macro issue,
13 which doesn't I think get enough attention. But it's
14 really important to recognize not just the direct benefits
15 which our other panelists will certainly talk about in
16 terms of direct employment from investment in
17 decarbonization, but also the indirect benefits. And this
18 comes from this idea of efficiency that I've been kind of
19 been pushing from the beginning of my comments.

20 Promoting energy efficiency saves money for
21 households and enterprises. What's so important about
22 that, apart from the selfish desire to save money? It's
23 very important, because consumers spend their savings in
24 significant proportion. Those savings, if the households
25 can spend less on energy they're going to spend money on

1 other stuff that they really want. They're going to employ
2 workers, it's of all skill levels and demographics.
3 Because 70 percent of household consumption in -- here's
4 the 77 -- 70 rule for California -- 70 percent of GSP,
5 total state demand is consumption; households, they drive
6 the economy.

7 Secondly, 70 percent of household consumption
8 goes to services. We're a postindustrial society. And
9 that means that if you can pull a dollar out of the gas
10 tank, because you have an efficient vehicle or a hundred
11 dollars out of your electricity bill, because you have more
12 efficient appliances or lower costs of electricity, then
13 you're going to turn around and spend 70 percent of that on
14 services. This is a very potent catalyst for growth. And
15 I'll show you how that works in the final slide. Next
16 slide, please.

17 All right, this is a list of 120 sectors in the
18 California economy ordered by job intensity, labor
19 intensity. That's the vertical axis. And the jobs on the
20 lower right-hand side are very low job content in terms of
21 jobs per million dollars of revenue. The fossil-fuel
22 sector is concentrated in that lower category.

23 Notice that it's a logarithmic scale, because of
24 disparities of job creation , intensities are so great
25 across sectors. The high-job intensity sectors are

1 services. So if you can get consumers to move their
2 dollars from energy to where they want it to go, into
3 services, this will have a potent multiplier effect for job
4 creation.

5 But that will be across the entire economy. It's
6 not just jobs for energy, whether new energy or old energy,
7 these are jobs at all the local service industries in your
8 community. That's where people want to spend their money.
9 And the average household expenditure on other things is 16
10 times more job intensive than conventional energy.

11 And the most important thing, I think in a way is
12 after that is that these are in-state jobs and services.
13 They can't be outsourced. They cannot be outsourced like
14 oil supply or like manufactured goods. So this is a very
15 potent opportunity to our complementary growth through this
16 idea of efficiency. And I know that building
17 decarbonization is going to promote efficiency. Thank you
18 very much.

19 COMMISSIONER GUNDA: Gabe, you're muted.

20 MR. TAYLOR: Thank you very much Professor, I
21 really appreciate that final slide. That's definitely
22 something we are going have to look at closely for our
23 final report.

24 Next up I'd like to introduce Philip Jordan, Vice
25 President at BW Research Partnership. Philip?

1 MR. JORDAN: Thank you, Gabriel. I'd like to
2 thank the Commissioners as well, for your leadership on
3 these issues. And I also appreciate your engagement and
4 support at the national level as mentioned, the federal
5 government, thinking about much of this work.

6 And I'm going to talk a little bit today about
7 some of those job impacts, so I think may be a good segue
8 from the from the prior presentation. And really, really
9 excited and happy that you had Dr. Reames on and that you
10 also have Sarah White speaking later, because I think these
11 issues are all intertwined. And so it's nice to see that
12 there are some real experts in the field.

13 As I think about sort of the challenge and the
14 opportunity in front of us with the potential creation of
15 substantial numbers of jobs and economic activity from
16 decarbonization, I think there are some complementary and
17 often competing aspects to how we'd like to see that
18 transition occur.

19 So of course we all love growth, right: job
20 growth, economic growth, earning growth, GDP growth.
21 We've heard a lot about savings and energy savings, the
22 importance of energy savings, particularly around energy-
23 burdened households. But as shown on the prior
24 presentation there those savings can really translate to
25 significant ripple effects throughout the economy of

1 increased economic impact.

2 Obviously the environmental protection that we're
3 looking for the in climate and impact on climate. Equity,
4 which I think really we're focusing on racial, ethnic, and
5 gender diversity and equity as a primary component of that.

6 And then the creation of high-road jobs, right,
7 that are a sustaining wage career jobs. And those often
8 can be accomplished in a single policy, but in my
9 experience it requires -- they do not always work hand in
10 hand, so it's really important I think that we think about
11 all those elements.

12 So I just wanted to lay that out upfront sort of
13 as a framing here. And I'll just take a few minutes to
14 give some of my observations from some of the work that
15 we've done. As I said nationally, we've produced the
16 California Energy Employment Report in 2020 for this
17 Commission as well as the U.S. Energy and Employment Report
18 with NASEO. And the Energy Efficiency Initiative
19 (phonetic) is of course, now back with the Department of
20 Energy.

21 And I thought I'd provide some observations in
22 terms of what we need to think about in terms of this
23 growth about equity and about workforce. So looking really
24 at just sort of the direct and indirect jobs, so thinking
25 about the jobs that are that are not all those what

1 economists call "induced effects," of the additional
2 spending from savings or earnings for these careers. But
3 just really on the direct sort of activities around
4 decarbonization and the supply chain, manufacturing and
5 services that go into that, we are talking about creating
6 hundreds of thousands of jobs in the United States from
7 this transition. And millions and millions of jobs-years,
8 as we call them, meaning that these are hundreds of
9 thousands of jobs that will last for a very long time as we
10 transition the economy to a decarbonized one.

11 And this really shows -- this chart here, is
12 really to show the types of jobs that get created with sort
13 of these, many of the policies that have been sort of
14 thought about in California and across the United States.
15 And we see lots of jobs around project development,
16 manufacturing, construction, really a lot of these sort of
17 deployment- related jobs. So keep those things in mind as
18 we think about manufacturing, engineering, construction, as
19 we go to the next slide, which shows California's industry
20 employment and the change really from pre-pandemic to sort
21 of the most recent data that we have.

22 And you can see these job losses in the far right
23 column of where the jobs have really been lost and sort of
24 where they have not come back. So leisure and hospitality
25 are still down 25 percent. Many of the other services and

1 business services down 19 percent, whereas things like
2 manufacturing and construction are 94 to 96 percent back
3 from pre-pandemic levels. This means really that we have a
4 mismatch, right? The types of jobs that we're looking at
5 creating are largely going to be found in fields that are
6 nearly back to their pre-pandemic employment. So obviously
7 everyone's going to be excited about creating more
8 construction jobs, more manufacturing jobs, more
9 engineering jobs.

10 But we have a new challenge facing us from
11 workforce development, which is really that -- and we've
12 heard this from employers throughout the country and in
13 California. It's very, very hard for an employer in the
14 construction industry who is desperate to get people on a
15 job site to know what to do with a person whose last job
16 was working in a restaurant or working in a hotel or
17 working in retail. So there is a mismatch there that's
18 very different from the great recession, where we had
19 really this housing bust following the financial collapse.
20 So we had lots of skilled laborers and construction workers
21 who were unemployed or underemployed. And the types of
22 infrastructure investments at federal level and the state
23 level really helped to bring those jobs back in significant
24 ways.

25 Here we have a little bit of a different

1 challenge, which is we still need to create lots of jobs,
2 absolutely no question. There's still have lots of jobs to
3 create. But we need to really be thinking about how do we
4 create programs and training and earn-and-learn to make
5 sure that as we think about high-road strategies and other
6 sort of considerations, how do we make sure that we're
7 getting folks who may have very unrelated backgrounds into
8 these fields. And by the way, they'll make a lot more
9 money doing those.

10 A couple of other considerations -- let's flip to
11 the next slide -- this is a figure that is replicated all
12 across the country and it keeps me up at night. And some
13 of this is certainly structural in the industries and
14 occupations that have been most impacted. But also
15 structural in that whenever we have a recession we seem to
16 see disproportionate negative impacts in communities of
17 color and also women. I don't have that in this, but you
18 can draw the same conclusion.

19 So what we see is just really very high rates,
20 much higher rates of unemployment in black and Hispanic
21 workers overall, and then certainly much more as a result
22 of the pandemic around the end of 2020. So you can see
23 some of these percentages and the increases.

24 But when we think about equity it's everything
25 that we've talked about. And I don't mean to suggest that

1 there's a "but" in here, it's definitely an "and", but I
2 would say it is absolutely the cost of energy and it's
3 absolutely siting decisions that create pollution in
4 communities. But it's also about the economic impact and
5 making sure that the benefits and the opportunities that
6 are associated with these jobs are available to people who
7 have historically not had equal access to the opportunity.
8 Next slide.

9 Now we're going to talk a little bit about the
10 challenge here on those two fronts and the opportunity,
11 right? So clearly what we see here is lots of job creation
12 opportunity flowing through the entire California economy,
13 huge numbers of jobs potentially to be created from this
14 decarbonization. And that is net jobs, which I think
15 Professor Roland-Holst sort of indicated with his
16 demonstration there on his slide of the energy intensity,
17 or the intensity of -- employment intensity of different
18 sectors. So lots of new net job right, lots of new jobs.
19 That will largely have to be filled by people who don't
20 have much experience today in related fields.

21 And to make our commitment to equity and
22 inclusion real, we need to make sure that we are also
23 ensuring that the opportunities are available. That the
24 training is available, that the pathways are available to a
25 substantially greater number of people of color and women

1 that are currently participating in the clean energy or
2 energy industries or construction industries or
3 manufacturing industries for that matter. So how do we
4 need to think about doing that and what are the skilled
5 sort of requirements that are going to be necessary here?

6 So now again complexity, there's all different
7 types of complexity over a period of time. But we looked
8 into some of the different certification programs around
9 things like installing air source heat pumps which is a
10 major sort of drive, the two-way heat pumps that DOE is
11 talking about, that many states are talking about.

12 And what we found is that for someone who is a
13 professional HVAC technician, it's a pretty low lift, it's
14 a pretty small lift. So most of the trainings are three
15 days or less of in-class training and then usually some
16 practice. And actually most of the programs are two-day
17 certification programs. But those are sort of as you
18 advance in the field, so there are opportunities to do
19 more. But we're talking about training measured in days
20 right, not weeks or months.

21 And that's important, because what it highlights
22 here is that the key is really the pipeline for HVAC
23 technicians and how to make sure that all HVAC technicians
24 trained in California are getting the various heat pump
25 installation training and manufacturer certifications that

1 are required.

2 I worked in the California community college
3 system for a few years and it's a terrific system. Many,
4 many states are envious of that system. And it's a proven,
5 not only in the academic and transfer arena, but also in
6 its current technical education, and its commitment to
7 serving a diverse population of students. So here's a
8 great example of how we can increase the pipeline and
9 accessible jobs by essentially ensuring that we have sort
10 of equitable access to the training programs that exist
11 already and incorporating many of these certifications that
12 are fairly low-lift certifications. I sort of make the
13 point again in the next slide.

14 So you can look at electric vehicle battery
15 charger installations. This is also very similar for
16 behind the meter storage installation. If you are a
17 California state-certified general electrician it's a
18 pretty short lift, right. So the charge point is actually
19 measured in hours. I guess you could do that in days too.
20 It's enough hours. You could measure that one in days.
21 And the EVSE certification is a 10-day online training with
22 a final exam. So for a certified electrician, it's a
23 fairly light lift. I would also note that the
24 electrician's portion of installing that heat pump is also
25 something that does not require significant additional

1 training.

2 So again the takeaway here is not dissimilar from
3 the conversation we had ten years ago in the same vein,
4 which is that a lot of these jobs around building
5 decarbonization have the same title as jobs that exist
6 today. They have some advanced skills, perhaps that are
7 short-term certifications that are often manufacturer
8 certifications. And that the real challenges I see it is
9 getting the access question right and making sure that we
10 are sort of continuing that emphasis on equity and those
11 high-road jobs.

12 So the question really is not oh good -- or the
13 takeaway I guess should be from the last two slides is not,
14 "Oh isn't it exciting? It only takes 40 hours. We only
15 need a one-week training program." That's certainly true
16 for certified electricians. But what we really need to be
17 thinking about is if the starting point to somebody whose
18 last job was in catering, then we really need to think
19 about how that person can get on a pipeline that has earn-
20 and-learn and apprenticeship and other apprenticeship-like
21 elements into that field.

22 So hopefully these comments have been helpful in
23 terms of framing around some of the needs that I see that
24 exist around the decarbonization workforce. And I look
25 forward to the discussion that will follow, thank you.

1 MR. TAYLOR: Thank you, Phil, really appreciate
2 the comments.

3 Next up we have Neha Bazaj, the Senior Economic
4 Inclusion Manager at the Emerald Cities Collaborative.
5 Neha?

6 MS. BAZAJ Hi. Thanks for that intro. Let's
7 see, do I have slides?

8 MR. TAYLOR: Here they are, yeah.

9 MS. BAZAJ: Yeah, as I mentioned thank you for
10 having me today. We can go to the next slide.

11 So the focus of my time today is really talking
12 about economic inclusion, specifically in residential
13 building electrification. There's some nuances and
14 differences between residential and commercial. And so we
15 often talk about construction as one sector, but that's not
16 really the case. So if we can move to the next slide.

17 So I'll share just a little bit about who
18 Emerald Cities is and what we're focused on, why I'm
19 focused, and why we at Emerald Cities are focused on
20 residential buildings, some of the unique challenges of the
21 residential construction sector. And then of course
22 wrapping up with some recommendations that I have for
23 moving forward. Next slide, please.

24 So Emerald Cities really takes the whole
25 system's approach to the clean energy and green energy

1 transition. So our mission is to green our cities, build
2 our communities, and strengthen our democracy. And so
3 while today we are really talking about the workforce
4 impacts of building electrification, at Emerald Cities,
5 we're really focused on both sides of that. And so as some
6 of our speakers today have already mentioned, making sure
7 that building electrification is accessible to all, as well
8 as ensuring that the work that follows from those new
9 investments and that new infrastructure, that work flows to
10 all as well.

11 And so up to that point also ensuring that any
12 jobs that are created through these investments are high-
13 wage, high-road careers. And so that requires a couple of
14 different things, not only the workforce development
15 infrastructure that Philip just spoke about, but also an
16 attention to the detail about what are the contracting and
17 procurement opportunities that are out there and how are
18 those structured. Next slide, please. Next one, thank
19 you.

20 And so without really going into it too much just
21 some basic statistics on why we feel that the residential
22 sector is particularly important. So here's some recent
23 research that the UCLA Luskin Center did, and we see that
24 the residential sector is responsible for 21 percent of
25 all-natural gas use in the state of California.

1 And so what that means -- if I can go to the next
2 slide -- again, from UCLA Luskin Center, of the many
3 thousands of jobs that are expected to be created through
4 building electrification, the building electrification
5 process, residential construction jobs are going to be 39
6 to 47 percent of all of those jobs. And so if we are
7 wanting to ensure that construction jobs are high-road, we
8 really can't ignore the nuances and we really need to be
9 sure that we're tailoring our policies and our approaches
10 to the different sectors. Next slide, please.

11 So as I mentioned at the outset, Emerald Cities
12 is really focused on whole systems approaches. And so just
13 as I've laid out the rationale for why we're focused on the
14 workforce in the residential electrification sector, I
15 don't think it can't be said enough how important it is to
16 ensure that there is equity and focus on the residential
17 sector and actually who receives electrification.

18 And so as we're all well aware low-income and
19 communities of color are the worst hit by the climate
20 crisis and also bear very high utility bills or utility
21 burdens. And so as we're designing our electrification
22 policies on both sides, we need to be sure to not be
23 exacerbating the inequities that already exist. Next
24 slide, please.

25 So it might be -- apologies if it's a little hard

1 to read -- but we've been doing some work with RMI and they
2 are working on putting together building inventories for
3 cities across California. And just to note that this is
4 very much in draft form.

5 But here we see that some of the nuances within
6 the residential building sector. So as I believe one of
7 our opening speakers noted that there really needs to be
8 attention to the differences between folks who own their
9 homes versus folks who are renting their homes, and nuances
10 between single-family and multifamily buildings, attention
11 to the income level of different homeowners and tenants,
12 and their abilities to adopt these new types of technology.

13 And leading into the next section of my
14 presentation, yes, while there needs to be lots of
15 attention to the affordability of these new technologies
16 that can't be at the expense of making sure that the
17 workers who are doing that work, that can't be at their
18 expense. Next slide, please.

19 So there's a lot of research and literature on
20 the differences between the residential and commercial
21 building sectors. So again, we have some research from the
22 UCLA Luskin Center demonstrating that the residential
23 construction sector tends to be more low road than the
24 commercial sector. And this is, of course, not -- I don't
25 want this to come across as every single residential

1 contractor is low road, that's certainly not the case.
2 We're talking about trends here. And so we even have some
3 research from the CEC itself and some other academic
4 literature saying that in the residential construction
5 sector it's just a different model. You're going for the
6 lowest bidder. And that can mean -- again, not that it
7 necessarily means, but it can mean -- that some of those
8 low bids come at the expense of workers' wages. Next
9 slide, please.

10 So in thinking about moving forward with
11 residential building electrification and thinking about the
12 workforce that is needed for that, we need to ensure that
13 the jobs that we're creating don't go low road. I think
14 it's very clear that the building electrification movement
15 or push is going to create jobs, but there needs to be
16 attention to how those jobs get created. Next slide,
17 please. Next one, please.

18 So it's been great to hear from the speakers
19 today and also a bit of a recap of the past few days -- but
20 unfortunately I wasn't able to attend -- that there is a
21 lot of interest and focus on diversity and labor standards
22 and contractor and worker training. And that's wonderful to
23 hear. I think unless those sentiments are actually
24 embedded into building electrification policies themselves
25 as well as the funding for all of those things to happen,

1 it won't happen, right? It's nice to have goals, but
2 unless we are being intentional about putting that into
3 policy and funding it, the implementation of that isn't
4 going to happen. Next slide, please.

5 So here's some high-level recommendations and
6 sort of in three broad categories. First up, I think, as
7 one of our speakers today already mentioned we need to have
8 collaboration. We need to ensure that we're engaging
9 communities, workers, as well as contractors early in our
10 processes to ensure that their input and their
11 collaboration are part of crafting these policies. They
12 know best what they need, and we need to hear from them.

13 And then I know that today's panel has really
14 been focused on workers, but again we have to remember that
15 workers work for contractors. And so not only do we need
16 to focus on making sure that folks have actual access to
17 the training that they need to enter the construction
18 field, but we also need to be sure that our small,
19 minority, women, disadvantaged contractors have access to
20 the contracting opportunities that come from building
21 electrification.

22 And to that last point about contract
23 opportunities, we need to engage in some creative thinking
24 about how might we structure residential electrification
25 incentives or dollars or projects so that we are not

1 reliant on that low-bidder model. Maybe we have to think
2 about ways that we can aggregate projects and create
3 contractor databases of contractors that we know are small,
4 minority, and women-owned, or that we know are paying
5 particular wages, that have a corporate training. Maybe we
6 even set wage standards for these projects.

7 And so this is just a few thoughts and a few
8 ideas, certainly not exhaustive. But again this is going
9 back to we need to be sure that we're doing that engagement
10 with communities, workers and contractors to develop the
11 correct solutions going forward.

12 And I think that is it for me. Thank you for
13 your time and looking forward to the discussion.

14 MR. TAYLOR: Thank you very much, Neha, and thank
15 you especially for joining this discussion. I think the
16 perspective is critical.

17 All right, we're going to have to save questions
18 for the end of the panel. I should have mentioned that at
19 the beginning of our discussion.

20 The final presentation on this panel to anchor
21 our discussion here is Cori Jackson, the Program Director
22 of the California Lighting Technology Center at UC Davis.
23 Cori?

24 MS. JACKSON: Great. Thanks, Gabe.

25 So I am sort of closing out this panel and I

1 asked to save my presentation until the end for a couple of
2 reasons. Number one, being at UC Davis, I've been there
3 for about 13 years now. We have been working in a number
4 of projects and programs on very practical day-to-day
5 workforce challenges. And how we solve what may seem like
6 simple problems, but they have big impacts down the road in
7 what's now being called high-road jobs.

8 And so I want to take this time to just sort of
9 give a very practical and small example of how some of this
10 decarbonization discussion and conversation could play out
11 in just one small sector of the California economy. So
12 next slide, please. There we go.

13 So in California, and this data comes from the
14 California Energy Commission, in California our building
15 stock is primarily existing buildings. And so looking at
16 it on an annual basis we have about 96 percent in the
17 commercial sector existing buildings, and roughly 4 percent
18 new construction per year. And these are buildings that
19 will be available for decarbonization measures.

20 Similarly, in the residential sector, only 2
21 percent of buildings are newly constructed homes and
22 existing buildings account for 98 percent of the building
23 stock.

24 And so when we think about decarbonization
25 measures and the jobs that go along with that, we should be

1 focusing, I believe, primarily on existing buildings and
2 measures and programs and solutions for existing buildings
3 across both sectors, residential and commercial.

4 It really is across all building types in the
5 commercial sector. The graph on the left, you can see that
6 everything from schools to restaurants to hotels, existing
7 buildings, really make up primarily the area that we are
8 going to have to focus in this state if we want to address
9 decarbonization. Next slide.

10 But there is a disconnect currently between the
11 projects and revenue that contractors, specifically
12 electrical contractors, are pursuing and receiving versus
13 the projects that we just saw need to be done to address
14 decarbonization. So if we know we need to look at existing
15 buildings to decarbonize in contrast, our electrical
16 contractors are focused. And this data comes from a sample
17 of about 1600 contractors. We know that they're focused,
18 at least primarily on new construction. So about 50
19 percent of projects in revenue are going to that 4 percent,
20 that 2 to 4 percent of newly constructed buildings.

21 And we have modernization and retrofits going on,
22 25 to 30 percent. So there are some projects going on
23 addressing existing buildings, but unfortunately about 25
24 to 40 percent -- and these numbers are based on contractor
25 size -- 25 to 40 percent of the projects in revenue are

1 going to maintenance and repair. And these are projects
2 that do nothing to essentially decarbonize our building
3 stock. And this is just work that's maintaining the status
4 quo.

5 So we have this disconnect between where our
6 contractors, primarily our electrical contractors, are
7 working now versus where they need to be working if we're
8 going to meet our decarbonization goals here in California.

9 And so the big question comes is how do we
10 incentivize? How do we increase interest in and activity
11 in the existing building sector through policy and
12 programs, so that we can reach those goals? Next slide.

13 So there's several specific revenue and
14 employment opportunities and several of the speakers have
15 touched on elements of this, but in the electrical
16 contracting field there's some very specific things, namely
17 after electrification in terms of equipment and using
18 renewable generation, where do we go for existing
19 buildings? And the one of the key areas where we need to
20 go is into controls and automation and grid connectivity.
21 And creating the jobs and the interest in putting those
22 buildings into the connected grid. And that's going to be
23 done through controls, through automation, and
24 communication technology.

25 There's going to be the need for metrics, which I

1 heard touched on, defining metrics on how we measure
2 building energy use and carbon intensity of our existing
3 buildings. And so there's opportunities and needs in
4 performance metering.

5 And then as we're collecting all of this data
6 what do we do with that data? And how do we really use it
7 to truly bring our buildings back towards an optimal grid-
8 connected position in California? But unfortunately, when
9 you look at the revenue again -- and I apologize if that's
10 a little hard to see -- but less than 10 percent of revenue
11 right now for our contractors are going towards things like
12 building systems integration, which will be key for
13 decarbonization.

14 Less than 10 percent of revenues for building
15 automation and control systems, communication, and energy
16 management, all of these things that we can talk about at a
17 high level. And those of us participating today know how
18 important they are. When it comes to people and
19 contractors doing this work today, very few are addressing
20 the technology that needs to be installed to get our
21 building stock, existing buildings in line with a
22 decarbonized future. Next slide.

23 This is a specific graph that really highlights
24 some of the gaps and where, I believe, the state as a whole
25 needs to be focusing their attention if they truly want to

1 create high-road jobs and creating that that workforce of
2 tomorrow. And these are firms -- this is self-reported
3 data, again from about 1600 to 1800 contractors -- but they
4 are reporting active engagement in systems integration,
5 data or telecom center projects.

6 And you can see on the left that about 50 percent
7 of our workforce is reporting that they are involved in
8 some form of these trades, some form of this technology,
9 which means there is over 50 percent as of 2020 that are
10 not engaged at all in any way in these services and
11 construction trades and technologies unfortunately.

12 And that's the gap that we need to address if
13 we're talking workforce development, is how do we engage
14 these folks into looking at systems integration and
15 communication for our existing building stock? Next slide.

16 So some of the challenges that we see and that we
17 are working through at UC Davis, at UC Davis the California
18 Lighting Technology Center where I'm at, as well as the
19 Energy and Efficiency Center, we've been involved in
20 workforce education since probably about 2005, 2007,
21 somewhere around there.

22 So before that big recession hit the state we had
23 just started diving into how do we teach skills and
24 transfer knowledge that traditionally falls to students at
25 a four-year university? How do we move that into the

1 workforce? And how do we take information and knowledge
2 and education that traditionally is taking four to
3 sometimes six or eight years to obtain through a university
4 system? How do we select and transfer that knowledge to
5 our workforce in a more useful way? In a way that they can
6 benefit from those skills and knowledge, but that doesn't
7 leave them eight years into an education that they may not
8 need for day-to-day jobs.

9 And so some of the challenges we've identified
10 over that time I think are potentially very, very poignant
11 and very, very focused and appropriate for building
12 decarbonization, which was not part of the conversation
13 over the last ten years of our work until recently at UC
14 Davis.

15 So right now we have found this is coming to
16 light. And it's been true of our work through the past
17 decade, is that we have new technology and new technology
18 is available. But it's coupled with an aging workforce
19 that is now choosing retirement over retraining. And so
20 we're losing this wealth of knowledge on electrical
21 infrastructure and the skills and knowledge to do
22 traditional jobs in the electrical industry. We're losing
23 that and we're losing the workers that will be there who
24 will retrain and learn the new skills that are needed to
25 decarbonize existing buildings, which are going to be

1 namely controls.

2 I heard someone say that our building stock has
3 become digitized. Unfortunately, I feel that our workforce
4 has not. And so when we don't have workers and companies
5 that are at the same level of technology, that that's a
6 huge gap that has to be addressed as in point number two,
7 so we're transitioning to this digital infrastructure.

8 And traditionally we have electrical contractors
9 and workers that are not part of the day-to-day work that's
10 going on with control systems, start-up and commissioning
11 and the programming and really the computer skills that go
12 along with that. And so there's now a blurring of the line
13 within the electrical industry between traditional wired
14 installation and the skills and knowledge that go with
15 that, and the new skills that come with a digital world and
16 a grid-connected buildings and all of the communication
17 that needs to go along with that.

18 Again integrated systems, we touched on it. We
19 saw 50 percent of firms that we're working with don't touch
20 on integrated systems, really in any way. But these
21 systems, we need cross-disciplinary knowledge or we need
22 skills and collaboration between different trades, which
23 historically has not always been the best. So we have very
24 siloed trades across the state that are working in HVAC,
25 but not in electrical or in plumbing but not security. And

1 now we're seeing these integrated systems and we want
2 integrated systems with the energy savings that come along
3 with that, but we have a workforce that needs to really
4 change the paradigm on how they work, to be able to work
5 with those kinds of systems and the collaboration that's
6 necessary.

7 And, as I mentioned, the lack of computer
8 programming and cybersecurity in particular, curriculum and
9 training within the trades is low. And how do we address
10 that? That is something in particular that UC Davis has
11 been working on with the Department of Labor. There's been
12 a federal investment in California to teach cybersecurity
13 curriculum to electrical contractors, because there's
14 methods with wiring and switching and programming and
15 skills that these contractors need to address building
16 cybersecurity. When everything's connected they become a
17 source of cyber threats.

18 So we also have existing issues with low rates of
19 compliance and enforcement of our existing standards. So
20 we have a lot of energy standards for existing buildings
21 that just aren't being enforced. And so very practical
22 solutions regarding enforcement of what we have already to
23 date could take huge strides, make huge strides in reaching
24 our decarbonization goals.

25 So the solution often isn't new standards or new

1 requirements, new regulation, but looking at what we have
2 and working with our communities to enforce the regulation
3 we already have.

4 And then last, and this was touched on briefly at
5 one point, is there is really a lack of financial
6 incentives that impacts capital and first costs. And it
7 can be community-specific, it can be specific to
8 communities of color or to specific areas of the state.
9 But there's a lack right now of how do we buy down these
10 technologies in a way that really encourages building
11 decarbonization in the existing building stock. Next
12 slide.

13 And so briefly some of the solutions, and again
14 it comes from the years of working in this arena, is we
15 know that we need to incentivize and invest in education
16 and training as an efficiency and decarbonization measure.
17 Education has been historically looked at as a cost to a
18 project. And there's no real value in terms of energy
19 savings or cost savings that's assigned to education and
20 training. And this is a fundamental flaw quite frankly in
21 how we address education and training here in California at
22 the state level. Without a value, recognizing the value,
23 it's we really can't go much further until that paradigm
24 changes.

25 And the second issue is in some areas we've

1 adapted training and certification requirements. But
2 again, training and certification of contractors on down to
3 workers can really ensure quality. And it creates those
4 high-road jobs that ensure that sustainable -- number one,
5 energy savings are sustainable, but our job market is
6 sustainable, high-wage jobs are sustainable, and that comes
7 through training and formal certification. They don't
8 necessarily need to be achieved through any kind of
9 university system.

10 Again, transferring the benefits of a university
11 and a community college system to the trades, that's
12 important. And quite frankly transferring the knowledge,
13 skills and hands-on learning that the trades excel at,
14 taking that information from the trades and how do we
15 better our college graduates so that they're ready to hit
16 the ground running when they graduate.

17 And then overall, and this has been touched on
18 throughout the speakers, we have California's Jobs and
19 Climate Action Plan for 2030. And I think the best thing
20 we can do as a society and as agencies of the state of
21 California is to embrace and support that plan. It's not
22 perfect, but it's very good. And it addresses many of the
23 things that we all talked about wanting to see. And so no
24 need to create the wheel in many cases, we can really use
25 that plan as a roadmap for where we want to go.

1 So thank you, looking forward to the discussion.
2 And I will turn it back over to the Commission. Thank you
3 very much for the time.

4 MR. TAYLOR: Thank you so much, Cori.

5 And I invite all four panelists to turn their
6 cameras back on and we'll invite the Commissioners to ask
7 questions.

8 COMMISSIONER GUNDA: Thank you, Gabe. I just
9 wanted to see if you put in any time for the Q&A question
10 that we got, so do we want to do that at the end?

11 MR. TAYLOR: Usually we have discussion with the
12 Commissioners first, and then we'll do the Q&A.

13 COMMISSIONER GUNDA: Okay, great. Thank you. So
14 first of all let me just give a thank you to all the
15 panelists for those thoughtful remarks and kind of helping
16 frame this workforce conversation.

17 I think I will start off from actually a very
18 high-level question on the cybersecurity specifically, and
19 then the jobs, and then the digitization of the overall
20 workforce as a starting point. And I will hand it over to
21 Commissioner Shiroma and Commissioner Monahan and Executive
22 Director Chernow in that order.

23 So if we want to talk about this intersection of
24 jobs, specifically in the interconnectedness of digital as
25 well as the electrical systems now and how do we really

1 improve the cybersecurity and the overarching planning? I
2 mean I think most of the work as Commissioner McAllister
3 laid out in the morning requires a lot of digitization and
4 having that comfort and security in that. So if any of you
5 can kind of talk about the evolution of the workforce along
6 those lines, and what do you see as solutions and options
7 there.

8 MS. JACKSON: Yes. That's a good question, Siva.
9 Cori, here at UC Davis. Cybersecurity has really become a
10 very important issue for us at the university. We have
11 within the UC system there is a wealth of knowledge on
12 cybersecurity issues from a very traditional perspective of
13 securing data centers, securing computer systems. But what
14 we're working on is we're seeing that issue, which I'm sure
15 is why it's generating the question, is that's becoming --
16 the building itself is becoming the point of entry into the
17 network.

18 And so we are working on -- with a grant, and
19 this is recent -- we're working on a grant with Department
20 of Labor of transitioning a subset of those computer skills
21 over to the trades. So that they can: 1) understand the
22 importance of cybersecurity and therefore become advocates
23 for it in their day-to-day work.

24 And 2) teach them some very basic wiring and
25 switching techniques, quite frankly, that can help island

1 or isolate buildings, so that there's not cascading
2 failures across a system if a cybercriminal were to access
3 a building system. And this is becoming more common.
4 Quite frankly, right now we are getting by because we are
5 not a high-priority target and by "we" I mean the
6 buildings. Buildings are not yet high-priority targets, so
7 we're really getting by just because we're in the shadows
8 right now as a building sector.

9 But it's starting to come to light. We saw this
10 with the fuel infrastructure on the East Coast when hackers
11 attacked, so there's a more and more risk being driven
12 towards the physical infrastructure. And so we're teaching
13 both the physical mechanisms for securing buildings that an
14 electrician or a contractor can take to eliminate the
15 cascading failures. But we're also teaching the theory and
16 some of the programming skills, so that before that
17 electrician walks out of the building, they can at least be
18 sure that they have connected their network lighting system
19 in a way that it's not easily accessible from the public
20 through the network. Or they have connected their HVAC
21 system that's part of a building energy management system.
22 Teaching them the basic skills to be able to look at and
23 verify and connect those systems at the very most basic
24 level to ensure some level of security before they leave
25 the building.

1 We're not teaching them to become commissioning
2 agents or to become security professionals in any way, but
3 simply be knowledgeable, become advocates, and provide the
4 first level of security before they leave the building and
5 turn it over to others to do that work. And so that's how
6 we're handling it right now with the work that we're doing.

7 COMMISSIONER GUNDA: Thank you, Cori. I don't
8 know if anybody else wants to comment. If not I will hand
9 it over to Commissioner Shiroma.

10 Commissioner Shiroma, to you.

11 COMMISSIONER SHIROMA: Thank you, thank you. It's
12 very insightful. Thank you to all of the presenters. And
13 it is what we are grappling with both at the Energy
14 Commission and the CPUC.

15 I was listening and looking at our decision that
16 we voted out on the Energy Savings Assistance, the ESA
17 program that it's \$2.2 billion we've authorized for the
18 next few years. And we are requiring the utilities to
19 track the contractors, where they're hiring. And then also
20 the education tours, a career-ladder type of effort now.
21 But clearly there's much more we need to do, so I'm not
22 sure if anyone has any viewpoints about the education, the
23 certificates.

24 The community college sector, I am a community
25 college alumni, San Joaquin Delta Community College in

1 Stockton. I'm proud of that, by the way. And to hone in
2 on something like that, are there some specific action
3 items, perhaps even beyond what we have jurisdiction over,
4 but specific action items that we need to spur, to spark?
5 There are also the apprenticeship programs of the unions.
6 And I'm sure we'll hear more about that in our next panel.

7 These are aspirational goals, but how do we put
8 those practical building blocks in place for job training,
9 higher wages, for creating an interest in these jobs?

10 That's a big question, but any other thoughts? Thank you.

11 MR. JORDAN: Well, Commissioner Shiroma, this is
12 Phil Jordan. And I worked at the Cuyamaca College in East
13 San Diego County a number of years ago in one of the
14 centers of excellence and we looked at some of these
15 issues. And I'm very familiar with the community college
16 system in California and would agree that it's a terrific
17 asset and conduit for helping to hit many of these
18 objectives. Because some of the skill requirements that
19 we're talking about that will be needed in the training and
20 certification are really in vocational trades where
21 community colleges already have very strong presence. And
22 many of the colleges have demonstrated sort of a
23 flexibility and ability to work with industry to help to
24 create sort of additional training and augmented training
25 modules.

1 Prior to the pandemic I traveled to the All-
2 Energy Conference, the decarbonize conference in Scotland.
3 And when I asked the folks in Scotland about how they were
4 doing it and shared some examples of how we do it in the
5 United States they looked at me and they were quite
6 puzzled. And they said, "We don't understand why you do it
7 that way. Because from our perspective these technologies
8 like heat pumps or different battery technologies or
9 charging stations, the companies that manufacture these
10 products have an absolute need to ensure that there's a
11 workforce that can install them." So if Fujitsu trains
12 everybody on how to install Fujitsu and Mitsubishi doesn't,
13 guess what's going to get installed and who's going to sell
14 a lot more units?

15 They said, "Why are you talking about the public
16 sector paying for training on specific technologies? What
17 we do here is we have our HVAC program, which we pay for.
18 And we put the money towards that and make sure increasing
19 accessibility there and making it free and all that kind of
20 stuff. And then we say okay and we make the weekends
21 available at your cost, Fujitsu or Mitsubishi, or Trane or
22 whoever it is. You can come in for the weekend and have
23 access to train our students. And you can give them a
24 certification at the end as an added certification. We'll
25 give you the space, but you're going to pay for it all

1 obviously, right? Because it's in your best interest to do
2 it."

3 So I think there are some best practices where we
4 can think about those sort of bolt-on trainings.

5 The latter half of sort of what you ended with
6 really is about exposure. And what's interesting is in
7 some of the research that we've done both labor unions and
8 communities of color have high degrees of skepticism around
9 the real opportunities that exist and want to see it
10 happening before they're willing to commit. And there are
11 different reasons for it right, but that's the whole labor
12 union model. Like, "We don't ramp up, right? You just
13 bring us the openings and then we find the workers to come
14 in."

15 But also in communities of color they want to see
16 that it's real, because it's a real commitment to enter
17 into the space. So I think that there is a strong,
18 important element around getting the timing right on all of
19 this, on the activities and making sure that the jobs are
20 available at the end, which we can learn a lot from the
21 apprenticeship models of the building trades in that way.

22 One last suggestion that I'll make to give a
23 shout-out to some of the community colleges in Southern
24 California is one of the more successful programs, I think
25 that came out of the ARRA stimulus money where the public

1 workforce system partnered with the community colleges in
2 Southern California was around pre-apprenticeship. And I
3 think that's the key here, which is there's obviously a
4 very strong commitment to create lots of construction jobs.
5 There's a strong commitment for many of these activities to
6 be under project labor agreements and to be requiring
7 prevailing wages and also union representation. But there
8 are some significant barriers to getting into the labor
9 union that do have to do with sort of whether it's national
10 electrical code or other sort of prerequisites that are
11 required.

12 So Palomar College was kind of a really good
13 example of a solar apprenticeship program about ten years
14 ago, a pre-apprenticeship program that would feed into IBEW
15 or could feed LIUNA or these other labor unions. So I
16 think that's a great place for community colleges to play.
17 Already a presence, already a trusted institution
18 throughout the state broadly and with a diverse student
19 body. And can play a really critical role in developing
20 those pre-apprenticeship programs. And making sure that
21 the folks who have been working in hospitality and tourism
22 or the ones who have been long-term unemployed, are aware
23 of the opportunities and are prepared to enter those
24 apprenticeships as the jobs come online.

25 COMMISSIONER SHIROMA: Thank you. Thanks, Phil.

1 (Overlapping colloquy with multiple speakers.)

2 MR. ROLAND-HOLST: Cori, do you mind if I ask you
3 -- because you're going to be more authoritative about
4 details than I am, but I want to insert myself if possible
5 between Philip and Cori, because in a sense I agree with
6 both of them. Cori's emphasis on fast-tracking skill
7 development is really essential in this category. And I
8 know this, because I've been part of this system for a long
9 time.

10 As you know, the UC, CSU, and junior college
11 system is one of the most successful experiments in the
12 history of public education. But frankly for when it comes
13 to technology, innovation, and deployment it's been very
14 hierarchical. And I think we really need to get more of
15 the skill development through this system to permeate the
16 whole pyramid of the system and improve access to skills at
17 the community level. If we're going to do that we can't
18 rely on multinational electronics companies, we've got to
19 rely on local training institutions to bear part of the
20 public costs of these things and to localize the skills.

21 And in that sense I agree with Philip, but I
22 would say that there's really an important role for the
23 public sector. He's not denying that, but I think that I
24 wanted to double down on that and say we need to come up
25 with new programs that don't require a decade of student

1 debt to develop skills that are marketable.

2 And in that sense the Europeans, they have some
3 good examples of parallel tracks for people who want to go
4 on to collegiate education, those who want to have
5 marketable skills within a year or two after graduating
6 from high school. And I hope that that's what Cori is also
7 talking about, going to give us ideas about, is how to
8 essentially fast track skill development at the local and
9 community level. Thank you.

10 MR. TAYLOR: Neha and Cori, you both had
11 something to say? Go ahead Neha.

12 MS. BAZAJ: Yeah, thank you, Gabe.

13 So I do, just harkening back to my presentation,
14 I do want to again draw a distinction between residential
15 construction or retrofits as we however we want to talk
16 about it, and commercial retrofits or construction.

17 I think the construction unions are great. There
18 are very clear career ladders and progression to increase
19 your skill and your wage potential, love for your
20 apprenticeship programs; all of that is wonderful and I
21 don't want to take away from that.

22 However, that is not the pathway for most
23 residential construction jobs. And so, again, we cannot
24 just ignore potentially 40 percent of all jobs that are
25 going to be created in the building electrification

1 transition. And so there aren't clear career ladders and
2 wage progression ladders in the residential construction
3 field, there aren't clear pathways into that. Maybe you
4 know somebody who does that sort of work and though you're
5 able to -- these are small crews that are residential
6 construction companies. And so yeah, again just
7 reemphasizing that 40 percent of all jobs, we need to do
8 some creative thinking about how to retool or create
9 pathways into that work.

10 MR. TAYLOR: Cori?

11 MS. JACKSON: I agree 100 percent with that
12 comment about residential. To circle back to the
13 Commissioner question about what there might be that the
14 Commission could look at, I would say from a very practical
15 perspective that workforce development, training, and
16 education programs have not been a priority for some of the
17 existing funding that the Commission does have available to
18 them to disperse.

19 In particular, I'm thinking about its EPIC
20 program, which is where research dollars funded by
21 California ratepayers CEC manages these dollars. And I
22 know that education workforce development have not been a
23 big priority of that program, although they could fit
24 nicely into sort of the market facilitation
25 responsibilities that come along with managing those EPIC

1 dollars.

2 So I think there's some things that could be done
3 within the Commission to prioritize education that have not
4 yet maybe been explored. And I would encourage the
5 Commission to look at prioritizing workforce training and
6 education in its existing programs.

7 And a second piece is really trying to -- and I
8 think Siva, Commissioner Gunda touched on it early --
9 trying to quantify the soft benefits, the energy and the
10 carbon savings benefits of education. It's difficult, it's
11 not a clear link always between the training and the
12 reduction in a ton of carbon or in a kilowatt hour. But I
13 really encourage the Commission to take on that work and
14 try to put a metric on those soft benefits. Even if it's
15 not perfect to first go around to iterate on it and take it
16 on for the future. Thank you.

17 MR. TAYLOR: I believe Commissioner Monahan has a
18 question.

19 COMMISSIONER MONAHAN: I do. I want to actually
20 build off the question that Commissioner Shiroma raised
21 around the community colleges and how do we accelerate the
22 investments in community colleges to support this job gap.

23 I mean what is a challenge is also an
24 opportunity, right? We have a lot of jobs in this sector,
25 we have a lot of people that need jobs, so this is like

1 kind of a no-brainer. How do we accelerate investment in
2 training? And I agree that we should be applying state
3 dollars towards workforce development, but how do we get
4 into this? How do we highlight to the community colleges
5 that this is a huge job gap?

6 So how do we get more information about wages,
7 real wages like for the build-out of ZEV infrastructure for
8 the installation of HVAC? I didn't see that pulled out in
9 any of your presentations, the amount of money somebody
10 could make a year in these sectors. And then it just seems
11 like well, there must be a way that we could get the
12 community colleges to see that this is an opportunity for
13 jobs with the people that are attending, going to those
14 institutions.

15 And Commissioner Shiroma, like you I am a
16 product of community college education. Actually I'm the
17 youngest of seven and we all went to community colleges,
18 because that's what you do when you don't have money. And
19 it was like an amazing platform for me and my family in our
20 sort of trajectory.

21 So I just think to scale up the amount of dollars
22 that we can put towards workforce just from our
23 institutions that's one source, but really it's like
24 prioritizing this in the community college system.

25 Am I getting that right? I mean, you can say

1 like, "Oh no, that's completely wrong." I would love to
2 hear any comments in that direction.

3 MR. JORDAN: So I'll be very, very brief because
4 I don't want to take up too much air time here because
5 others I'm sure have comments. But know the jobs generally
6 do pay quite above the median wage. And I can put in the
7 chat, I'll put in a report that we worked on at a national
8 level and has some state-level data on the premiums paid
9 across the different industries. It was a two-year effort
10 that we did with NASEO and the Department of Energy, so
11 they are good jobs.

12 I think part of the challenge that we're facing
13 here is that when we look at the supply of talent that is
14 available to enter into the workforce, meaning people who
15 have either -- who are unemployed or are working in lower
16 wage fields often need supports that go beyond just free
17 college.

18 And so Skyline College is working on a very
19 interesting program that has been successful. It was
20 started in New York with the City University of New York
21 system, which is called the ASAP program. And Skyline is
22 piloting this in California. And basically it unlocks a
23 substantial number of resources that are either existing
24 resources or brings to bear new resources to help people
25 persist in college. And so I would very much encourage you

1 to check out that Skyline program, because it really
2 attacks many of the things that are the core elements of
3 the trauma of poverty that people are living in.

4 So it addresses transportation security, food
5 security, housing security, stipends, lots of things that
6 are really necessary for people where free isn't free if it
7 means you have to stop working and you're the only thing
8 that's putting food on your table.

9 So I'm going to stop talking, I'm going to put
10 those in the chat. And the rest of the panelists have more
11 to say on this than I do, I'm sure. So I will put those in
12 that.

13 MR. TAYLOR: We are running a tad short on time,
14 but we do have two comments in the Q&A as well.

15 Oh, go ahead, Commissioners.

16 MS. JACKSON: Could I add one response to
17 Commissioner Monahan before we move on? Just to let you
18 know, Commissioner, the community colleges recently -- I
19 don't know if they're still managing this program -- but
20 they took on exactly what you're saying. Trying to
21 identify gaps in workforce and jobs that they could fill,
22 even looking at four-year programs that they could offer,
23 which they're allowed to do if a university system, four-
24 year college doesn't offer. But they were calling it
25 workforce or sector navigators and they were staff across

1 the system that were tasked with identifying those labor
2 gaps and building programs around those gaps and future
3 workforce needs that would be coming.

4 So we might want to look into that and look at
5 that model as something that could be useful going forward,
6 because I know they had invested quite a lot in that model
7 at the community college level.

8 MR. TAYLOR: And Kristy Chew from the CEC staff
9 will read off a few of the questions from the Zoom chat
10 from the public.

11 MS CHEW: Hi, this is Kristy Chew with the Energy
12 Commission. One question slash comment was from Anna
13 Solorio, "Growing up in a union household many years ago, I
14 want to point out that many small contractors in California
15 are currently minority- and women-owned. So high-road
16 solutions become more complex. Workforce solutions should
17 include targeted focus on these businesses and growing
18 these businesses to sustain higher wages. Not sure if
19 anyone wants to comment on the women-owned, minority
20 businesses.

21 MS. BAZAJ: Yeah, I can jump in.

22 MS. CHEW: Great.

23 MS. BAZAJ: And thank you for theh comment and
24 question, and 100 percent agree that we need to support
25 small-, minority-, and women-owned contractors and also

1 agree that high-road solutions become more complex. I do
2 think this is where we certainly welcome input and
3 collaboration from those small minority and women-owned
4 contractors to figure out what the solutions are to become
5 high-road. High-road in the small contracting field doesn't
6 have to mean the same thing as high-road in large
7 commercial, union context. So you know, high and low road,
8 it's not just wages, it's you know a whole package of
9 elements of the job. And so I think welcome the
10 collaboration from those contractors and figuring out what
11 that looks like.

12 MS. CHEW: Does anyone else want to comment on
13 that? If not, I'll move on to the second question. The
14 second question is from the East Bay Community Energy
15 group. "I feel there is a tension with the desire to put
16 disadvantaged communities and underserved communities at
17 the front line with concerns over increasing utility bill
18 costs. Do panelists have recommendations for program design
19 to balance these competing needs?"

20 MS. JACKSON: Cori, from U.C. Davis. I can make
21 one comment. A program that we've been looking a lot at
22 with the potential to reduce costs and help to sort of
23 reduce carbon and stabilize the grid is actual real time
24 pricing, and so that is dynamic pricing that's going out in
25 probably five minute increments to consumers and to

1 ratepayers across the state and there's studies out there
2 that show that real-time pricing even if, when it's
3 available and even if consumers, ratepayers are not taking
4 advantage of the kind of planning they can do around real-
5 time pricing that they're still generally saving money on
6 their utility bills because prices for energy are, high
7 prices for energy are often aligned with times when folks
8 are at work or away from the home. So I think there's some
9 very specific programs around real-time pricing that we
10 could look at here in California, that I know are being
11 looked at outside of the state and used outside of the
12 state in a more progressive way.

13 MR. ROLAND-HOLST: I really support Cori's
14 suggestions in that area and I'd also encourage that the
15 Commission consider research funding to better understand
16 the heterogeneity both the needs and the behavior patterns
17 that's been alluded to several times. The complexity of
18 behavior, particularly among underserved communities and
19 the constraints they face. Tony made that point very
20 directly when he talked about the experience of local
21 adversity and how that conditions people's behavior and
22 makes them skeptical of institutional solutions, all kinds
23 of dimensions of this.

24 And I really think we need to improve the
25 information available before we start talking about

1 targeting, but targeting will be essential, because as I
2 said in my presentation, you know, diversity is a beautiful
3 resource in the state of California, but it makes policy
4 very challenging and that doesn't excuse us policymakers
5 from addressing it because that's the only way we can have a
6 long-term, inclusive and sustainable remedies, but I really
7 feel that we need to improve both public and private
8 information to make this a more effective process.

9 MR TAYLOR: Thank you so much.

10 Oh, go ahead Neha.

11 MS. BAZAJ: Sorry, very quick comment as we're
12 talking about incentives for new technologies. Again, you
13 can target those incentives towards those who most need the
14 funds to make those changes and it doesn't have to be the
15 same incentive across.

16 MR. TAYLOR: Thank you all very much to all the
17 panelists. We are ready to move onto our next presentation.
18 Any last final comments from the Commissioners? Go ahead.

19 COMMISSIONER SHIROMA: At the CPUC of course we
20 voted to raise rates to fund all of these programs. I will
21 tell you that on the CARE, ESA, FERA program - the ESA
22 Program, the Energy Savings Assistance, again \$2.2 billion
23 over the next few years. We have been tracking the
24 investor-owned utilities' expenditures, and their hiring of
25 contractors. They over these past few years, they have

1 actually been not been spending all the authorized monies.
2 I think we feel that there is a view in California that it
3 is worth it for all of us customers to help defray these
4 costs, that in the end, it does help all of us, and so we
5 authorized the expenditures. It is actually still -- even
6 as we're talking about billions of dollars, it is still a
7 cost-effective effort. And in saying cost-effective, we've
8 also authorized, in the Energy Efficiency Program an equity
9 piece that isn't tied to cost-effectiveness, but rather
10 what we're calling a total system benefit, an effort to
11 really infuse those energy efficiency monies into low-
12 income and disadvantaged communities. To again just
13 increase the amount of energy efficiency measures within
14 these communities, so I'm hoping that we are on our way to
15 actually implementing much of what has been discussed
16 today, but meanwhile what you have provided is a means to
17 further infuse this into the workforce, to really jump onto
18 some new ideas.

19 And, by the way, on the EPIC funding, yes it's
20 the CPUC that provides those funds to the Energy Commission
21 and so the CPUC needs to take a look at what other
22 flexibility can we give to the Energy Commission on the use
23 of those funds for the workforce, I will own that piece.
24 Okay, thank you.

25 MR. TAYLOR: Thank you very much, all. This has

1 been an excellent discussion and, obviously, turning it
2 back over to heather for the next presentation.

3 MS. RAITT: Right. Thank you so much, Gabriel.
4 And thank you again to all the panelists. That was really
5 awesome.

6 So next, we have Sarah White, who is a Senior
7 Advisor for Jobs and the Economy at the Governor's Office
8 of Planning and Research. Go ahead, Sarah.

9 MS. WHITE: Great. Thank you so much. Hi,
10 everyone, I am only sorry to say that I was not able to
11 join for the full morning's conversation. I rejoined in
12 the last five minutes and I think I have about 20
13 additional things I'd like to say that I won't have time
14 for. So the good news is that you have a whole other panel
15 coming after this, which can address I think many of the
16 really interesting questions and issues raised by the
17 morning's panel.

18 Anyway, I am I'm Sarah White. I am the
19 Governor's Senior Advisor for Jobs and the Economy, working
20 in Office of Planning and Research. And we are preparing,
21 together with the Labor agency, to release a Just
22 Transition Roadmap later this month. And I want to talk a
23 little bit about that with you and how that intersects with
24 the decarbonization conversation. As well as a number of
25 related investments in the new budget, including a \$600

1 million Community Economic Resilience Bond, which is
2 implementation of Just Transition planning in the state.

3 So I'm going take it up a little bit higher
4 level. Talk about some strategies for transition and the
5 high road and then intersect that with decarb before we
6 move back to, I think the conversation that excited my
7 colleague, Shrayas Jatkar is facilitating after this, which
8 really I think talks about the way that just in response to
9 some of this morning's conversation the Labor agency at the
10 state can be at the center of coordinating many of these
11 questions about connecting supply and demand in the labor
12 market. Instead of having sort of a fragmented set of
13 workforce investments across agencies, but that have one
14 place that actually directs and coordinates a high-road
15 vision for workforce development across agencies and
16 investments and industries.

17 So that's some exciting work coming up, and I
18 just want to refer to that because that's a critical part
19 of our Just Transition Plan.

20 So let me just say that I want to talk a little
21 bit about the high road transition or the Just Transition
22 Plan that we have. It aligns very well with some things we
23 heard this morning from the Commissioners, as well as from
24 the Biden Administration. I was excited that Commissioner
25 McAllister kicked us off this morning reiterating the

1 Energy Commission's commitment to equity and to
2 inclusivity, as well as Commissioner Shiroma talking about
3 the CPUC calling for accessible high-quality jobs. That is
4 the fruition of many years of work. Those commitments are
5 part of a decade of work in California, which is now
6 leading the conversations on this sort of transition.

7 So to have the leadership in our energy and
8 utility institutions calling for job quality and equity is
9 really remarkable and I want to thank you for that
10 leadership.

11 I want to say also before moving into our
12 definitions of Just Transition, that the way you've set up
13 this day really reflects, I think, best practice in energy
14 workforce development. So the first commandment, as you
15 all know, is know thy labor market. We never start with
16 the training. You start with where the jobs are, what are
17 the jobs, and what are the skills we need? And then you
18 build training partnerships to meet those skills and
19 throughout all of that we emphasize equity.

20 And in the labor market, we know that this means
21 a variety of things. It knows that, like for those of us
22 who work with and among energy agencies, we know that what
23 we do, our energy policy impacts labor markets. We are
24 going to create jobs, good jobs or bad ones. But even
25 without intending to create jobs, we impact the labor

1 market. So being aware of our policy investments matters a
2 great deal. As well as then we have workforce policy,
3 which can build access into those jobs, which is the way
4 that we describe equity. At least equity in its sense of
5 reducing economic inequality, so building accessible
6 pathways into quality jobs is a way that we get equity in
7 the labor market.

8 So those are the things. That seems to be the
9 way that the day is structured. We heard this morning, and
10 this afternoon we're going to hear how that works in
11 practice. California has done some amazing innovation in
12 the workforce sector around a lot of things, including
13 construction and energy efficiency and renewables.

14 I think it takes a lot, I just want to remind
15 folks it takes a lot to move from understanding the
16 aggregate shape of possible jobs that could occur if we
17 have these investments in things like decarbonization, for
18 example. But moving from that to actually creating those
19 jobs and building pathways into them at real job sites in
20 actual regions of California, it is a hard thing to do, and
21 to do well and do systematically. And so I'm pleased that
22 everyone here is working on that, but we do have plans and
23 strategies for that.

24 So I just want to thank again the CEC team for
25 inviting me to talk a little bit about Just Transition and

1 for organizing a workshop that follows these lines of best
2 practice in workforce and clean energy workforce practice.
3 So, this is great.

4 I'm going to zoom out a little bit here just to
5 talk briefly about Just Transition. For us, Just
6 Transition is -- and this is a very loaded term, I'm not
7 going to into its history or its politics -- but let me say
8 at its broadest Just Transition is a transition to carbon
9 neutrality that serves all Californians. It is so that
10 everyone, including populations who traditionally have not
11 been at the table making decisions, can share in the
12 economic and the health benefits of carbon neutrality; in
13 this case the benefits of deep decarbonization.

14 So this transition, I want to say also we call it
15 a high-road transition -- more on that in a minute -- but
16 it looks different in every region, in every industry. The
17 economic transition of California to carbon neutrality
18 looks different in a Sierra community, in a forested
19 community, in the agricultural valley, on the coasts. You
20 know, oil and gas in Kern looks very different from oil and
21 gas in L.A. The work on forestry in the mountains looks
22 very different than the work on ag and drought response in
23 the Valley.

24 So the high-road transition is not driven, as we
25 see this in the administration, is not driven simply by

1 climate and energy policy. But also by climate change
2 itself, right? How the economy responds to fire and
3 drought and flood and the macro-economic forces of
4 globalization. So the energy transition is a huge piece of
5 that, but we're also looking at a broader economic
6 transition related to climate policy that is in
7 transportation and agriculture and forestry and climate
8 resilience and a lot of other things.

9 I saw actually that there was a great comment
10 written right before we left the last session that asked us
11 to think about moving directly from fossil fuel jobs to
12 green sector jobs. And I think one of the misconceptions
13 about the labor market is that there will be simply a one-
14 to-one replacement of green jobs for fossil jobs. But it
15 is much more complicated than that. And it doesn't look
16 like that really, right? We're talking about jobs across
17 industries and occupations.

18 And one of the things that we found in our work
19 is that there simply are -- and decarb might be a slight
20 exception to this -- but for the most part there's simply
21 not enough high-quality jobs to move people whose jobs are
22 being disrupted into. We have to think about job creation
23 as much as we think about job training. And I think that's
24 unusual. I think a lot of us like to start thinking about
25 job training as a way, a pathway to equity and mobility,

1 but what we first have to think about is creating the jobs
2 for people to move into. So that's what the high-road
3 transition is about, in part.

4 We were part of the Executive Order last fall
5 asked the Labor agency and OPR to come up with the Just
6 Transition Roadmap, but really to also consider what it
7 means to transition the economy post-pandemic. What is it,
8 what is economic recovery, in addition to transition look
9 like? What does it look like not to simply transition away
10 from fossil fuels, but to transition to an economy which
11 actually has less inequality. And is that more inequality
12 between communities, between peoples, across regions of
13 California in many ways.

14 And so that is a large task of the Just
15 Transition Roadmap, and in fact of Governor's Newsom's
16 California Comeback Plan, which is part of the budget.

17 So this is a very intersectional approach. I
18 want to say I appreciate the comments earlier about how
19 complex it is to do workforce training when your goal is
20 equity. I think that for us, in Just Transition, we are
21 thinking not just about workers whose jobs have been
22 disrupted, but also workers and community members who have
23 not had access to good jobs in the first place.

24 A traditional Just Transition conversation looks
25 like, we have a new technology or a new industry direction

1 that's going to disrupt some old jobs. Let's train those
2 folks for new jobs. But we know that it is simply not
3 about this. It's about creating enough opportunity to move
4 folks into different jobs and creating opportunity for
5 everyone, not just for those who are perhaps having their
6 jobs disrupted. But there's a lot of folks who have been
7 languishing in the low end of the labor market for decades.
8 And we want to make sure that we're creating opportunities
9 for them as well. So that's an intersectional approach.

10 The other piece, as I mentioned, it's not just
11 about training. In many cases, in many industries, we're
12 talking about a good jobs shortage, not a skills shortage,
13 right? So the good news is that as I'm sure you have
14 heard, decarbonization is going to create a lot of high-
15 quality jobs. Done right, it can do that. So what it
16 means strategically is the Just Transition Roadmap. And
17 let me just say very briefly what this is to sort of locate
18 us in context.

19 So the elements of Just Transition include --
20 there's five of them. They include economic
21 diversification. This is a long game. This is how
22 California builds its quality jobs in a carbon neutral
23 economy and how we rebuild local tax bases, which is a
24 whole other question that this relates to.

25 We also have a series of work-around industrial

1 planning, which is what this conversation is about, right?
2 What does it look like to transition a particular industry?
3 What does that mean for jobs and workers and communities
4 and businesses?

5 Then we have a bucket that's around workforce
6 development. We know what the jobs and the skills are, so
7 how do we deliver the skills necessary to achieve
8 decarbonization and how do we define what those jobs are
9 and who has access to them?

10 There is also a bucket of work around safety
11 nets. That's part of Just Transition, which is what do we
12 do about workers whose jobs are being disrupted? Who maybe
13 cannot move easily into a new job or equivalent job. What
14 kinds of social supports do we have for them?

15 And then finally addressing all of these issues,
16 Just Transition is primarily for us about regional
17 partnerships. What does this work look like on the ground
18 in local economies, in local labor markets? And how are
19 those decisions made?

20 This is also where you're going to get the best
21 workforce answers. We can do things systematically as a
22 state, but we are committed to helping regions develop
23 their own solutions to figuring out what the jobs look like
24 and what the skills look like in their local labor market.
25 So they connect directly to institutions moving real people

1 into real jobs rather than just doing this at a sort of
2 abstract economic level. So those are the elements of Just
3 Transition.

4 Laying over all of that, I will say is a set of
5 high-road values. I've heard the words "high road" used a
6 lot in the last year, which is tremendously exciting. I
7 know we're using it to mean a lot of good things in the
8 labor market. I will also just want to remind folks that
9 it's a term of art. There's a very specific set of
10 economic development and workforce development policies and
11 practices. And it's based on a set of values, which
12 include equity, which includes sustainability, which is not
13 just carbon neutrality, but paying attention to
14 environmental issues as well. It looks at job quality and
15 competitiveness. And it looks at, for the lack of better
16 word, democracy or inclusivity, right? How we make
17 decisions in a transparent and inclusive way. So all of
18 those things come together in a high-road approach, so we
19 apply that to our transitions. And you'll get what you'll
20 see in our Roadmap and our website is very complicated
21 intersectional system that actually will work with all of
22 the institutions that you are talking about reforming
23 today.

24 So let me just bring that back briefly to
25 something very practical, which is the Community Economic

1 Resilience Fund. I don't want to spend a lot of time on
2 this today, but I do want you to be aware of it. This is a
3 fund, a \$600 million fund, which is invested, which is
4 going to invest in regional collaboratives in every region
5 of the state. Particularly those which have not had a lot
6 of support from state or federal funding.

7 It includes these collaboratives, includes the
8 usual suspects, but primarily provide access for labor and
9 community to join the table with business and government
10 and education and others. And this speaks to the broad
11 approach that Tony Reames described this morning from the
12 Biden Administration, the whole of government approach.
13 These collaborators are going to coordinate federal and
14 state infrastructure investments, as well as all the
15 community capacity building work in the budget that is
16 funded to make sure that communities have a voice in this
17 work, in this Just Transition work. And they are going to
18 do really careful labor market and economic development
19 planning and prioritize the investments for their local
20 labor markets.

21 And then we have a series of investment grants up
22 to 500 million that are going to go out to actually build
23 these projects in these communities or build the projects
24 that they choose. And decarbonization I imagine will be a
25 big part of that. So I think that integrating the decarb

1 conversation into this regional work is going to be the
2 next step that I think is tremendously important. So we'll
3 want to be sure to work with you as we roll out that
4 Community Economic Resilience Fund to make sure it's jiving
5 really well with the work that you're outlining here.

6 That is a lot. It is very high level. I'll
7 leave it to my colleagues this afternoon to talk about what
8 that looks like in practice. And I'm happy to entertain
9 some questions before we move into the meat of the
10 afternoon, so thank you very much.

11 COMMISSIONER SHIROMA: This is Genevieve, for one
12 question.

13 COMMISSIONER MCALLISTER: Go ahead, Genevieve,
14 yes.

15 And this is Commissioner McAllister. I'm back,
16 but certainly a great conversation and thank you for the
17 last panel as well. Thank you, Sarah, for being with us.
18 That's really helpful.

19 Go ahead, Commissioner Shiroma.

20 MS. SHIROMA: Okay, yeah. We've talked -- thank
21 you, Sarah, we've talked about community colleges, about
22 pre-apprenticeship programs, apprenticeship programs. The
23 private sector training their workforce, what have you. I
24 was wondering if there is a stronger role for a community-
25 based organization. For example, I took my dad to do his

1 taxes at a CBO called Asian Resources here in Sacramento.
2 And they helped him navigate getting that done. And then
3 at the end, the fellow who was helping us said, "Here's my
4 card. If you know anybody who's looking for a job, please
5 help have them contact me."

6 MS. WHITE: Wow.

7 COMMISSIONER SHIROMA: That was fantastic. And
8 at the CPUC we are really looking at how can not only our
9 investor-owned utilities, our regulated utilities partner
10 up with community-based organizations on a whole host of
11 things, while we as a state agency partner up better with
12 CBOs. So I'm just wondering if OPR has a community-based
13 organization effort going on as well.

14 MS. WHITE: Absolutely, Commissioner. That is
15 such a great question and what a lovely example, right, one
16 great example. So I think you'll also hear more about this
17 from my colleagues who are going to speak shortly. This is
18 critical to the model, this partnership model that we tend
19 to -- we all work in silos, right? And we all kind of want
20 to do everything. So the colleges want to do everything.
21 And the workforce boards want to do everything. And the
22 CBOs want to do everything, because it's you're driven by
23 mission.

24 But the fact is that everyone brings different
25 skills to the table. So what we have modeled, both at the

1 Labor agency and the Workforce Board, and in our Just
2 Transition planning and the Governor's Office, is around
3 building partnerships. So, for example, even thinking
4 about workforce and energy, the CBOs have a huge role to
5 play. And they not only provide support for a variety of
6 participants, but they also outreach. They know the
7 communities. This is how you get -- this is where you
8 reach the people that you're trying to reach and include.
9 This is the outreach of CBOs is a critical piece.

10 And you know the colleges are fabulous at
11 training. They need to do some of the training. The
12 colleges are educational institutions. They also have deep
13 community roots, so are good there. But you know the same
14 way that the workforce boards can bring in financial
15 support for additional programs. The way that connecting
16 to actual apprenticeship programs once you've brought
17 people in the door, will help people advance in this
18 market.

19 So I think that you're absolutely right. CBOs
20 have to be at the center. I see them at the center in two
21 ways. One is as a feeder and a support for people in
22 joining the workforce programs. But also in this larger
23 question of deciding what their local economy looks like
24 and making some investment decisions as well.

25 We would like to expand the role of CBOs to be

1 one which helps decide on community visions for their
2 future economy. So it's not just the state deciding what
3 your local economy looks like, but that they have a voice
4 in that as well, so great question.

5 COMMISSIONER MCALLISTER: Can I follow up on that
6 actually, Sarah? Just and I was thinking along those lines
7 and you articulated the question much better than I had in
8 my head, thank you, Commissioner Shiroma. But yesterday we
9 heard over and over again that -- and I think we really
10 tease that out in the discussion as well -- that the state
11 agencies are kind of uniquely not good at getting into
12 local communities in ways that are really relevant to those
13 communities; particularly where you have historically
14 disadvantaged and a huge diversity. And you just have to
15 have a situational awareness on the ground that a state
16 agency is just kind of not set up to have.

17 And so obviously, some do it more than others.
18 But in the energy agencies we tend to be relatively
19 centralized. And so there were a few ideas that came out
20 of that discussion. But basically the gist of it as
21 resources to really treat CBOs as infrastructure. So that
22 we can't -- real resources, real monetary and other
23 resources to really empower them to get that decision-
24 making process happening at the ground that reflects the
25 communities' priorities. And then figuring out, you know,

1 together with the state agencies and local governments
2 etcetera, all the players you've mentioned, to kind of
3 tease out the priorities for that locale. And really prep
4 for whatever the implementation is going to have to look
5 like.

6 So is there some discussion of how the CBO
7 network can actually be resourced?

8 MS. WHITE: Absolutely and it's such a great --
9 and it's such a perfect moment for this conversation. I'm
10 so delighted that it's coming up in this way here. Let me
11 say that so there's two things. One is we are coming to
12 similar conclusions about what's the highest best use of
13 the state in this, right?

14 And so one of the things we've come to,
15 especially thinking about this community economic
16 resilience, is that the state -- we have many roles. We're
17 not a regulatory agency, so we have a slightly different
18 role. But we do say is that, wherever we are giving out
19 funds to support people, we can we can do two things.
20 We're not going to tell people what to do with the money.
21 But we're going to say who has to be at the table. We're
22 going to put some strings on the money that says you have
23 to have communities at the table. And not just because you
24 got a letter from the CBO, but there's an actual
25 participatory voice there as well as for labor and workers.

1 So we can say who's at the table to make sure we're setting
2 a full table.

3 And then we can also make sure that the
4 investments, whatever they are, follow a set of high-road
5 values, right? So we're not going to say you have to build
6 this industry, but we're going to say when you do you have
7 to pay attention to, for example, job quality and
8 accessibility. So the state can put those kinds of
9 directors on the money, if you will.

10 But a really specific example that we've written
11 into the Community Economic Resilience Fund, and which is
12 also funded independently in the budget this year depending
13 on the final negotiations ,of course, is something that
14 came out of the Legislature known as 1072. It's called
15 Regional Climate Collaboratives. It's not a good name,
16 because it's not regional. It's not collaboratives. But
17 what it is, is it's run out of the Strategic Growth
18 Council. And it is direct investment. We have \$20 million
19 invested this year to work with community-based
20 organizations in local places to participate in these state
21 and local processes.

22 So I mean what you often find is that folks don't
23 even have the -- they don't know where the meetings are
24 happening. They don't have child care. You have to pay
25 for them to take time off with work. They need

1 transportation to a meeting. They need to understand how
2 to organize and participate, right? And there's also a lot
3 of local wisdom, so it's also sort of not just building
4 capacity but harnessing that capacity.

5 So there is, as I know right now there's \$20
6 million in the budget directed specifically to helping
7 community organizations expand and participate in those
8 kinds of decision making processes. And there needs to be
9 more right now, because there are also very many of those.
10 And it's not enough to cover everything, but that's one
11 place that we're seeing this move ahead.

12 And I also like that model, because it helps
13 instead of each agency, energy agency or labor agency and
14 CARB all setting up their own community processes, you get
15 together partnerships with folks where they can all join
16 together in in modeling those conversations. So that's a
17 great question.

18 COMMISSIONER MCALLISTER: Beautiful, thank you
19 very much.

20 Any other questions from the dais before we move
21 to the next panel?

22 COMMISSIONER GUNDA: Commission McAllister, I
23 think this could be a very long question. So just if we
24 can follow up around this. Thank you for your work and I
25 just want to recognize Shrayas's work too. He's been

1 incredibly helpful for us in advising on the SB 100
2 process.

3 So I think just at a very high level, when we
4 framed at the top yesterday, the equity question right, as
5 we transition. You know, there was a solid recognition and
6 the commitment across the leadership to ensure that we
7 really prioritize those that have been left behind for a
8 very long time right. So that's something we will do.

9 But there is also this active recognition of not
10 creating new groups that will be disadvantaged in this
11 transition. And I think this goes to your comments early
12 on, on how complex it is to think about the job transition.
13 You know, like it's not one to one. So as with any good
14 policy right, I mean it's like if your data driven with a
15 number of scenarios to really help frame this, would you be
16 able to at a very high level just provide some level of
17 confidence that there are pathways? To ensure all
18 Californians will move forward in this transition, no
19 matter how difficult they are.

20 And just kind of at a very high level that there
21 are pathways, it's going to be challenging, but we can do
22 this, would be a really good thing to hear from you.

23 MS. WHITE: So I want to be careful about
24 committing the state to saying that we're going to care for
25 every California and guarantee their jobs. We're not

1 making jobs guarantees, but I think there are definitely
2 pathways.

3 One thing we find in the Just Transition work is
4 there is no one place in this country or other countries
5 where anybody has done this, all together, in a really
6 perfect successful way. But there are examples in each
7 case of things that really do work. And what we're trying
8 to do is lift up each case and apply those lessons here.

9 So there are ways that we can effectively support
10 people in transitioning careers. There are ways that we
11 can effectively support people if they are going to move
12 into early retirement. There's ways that we can
13 effectively support people moving from low-skilled jobs to
14 high-skilled jobs. There are ways that we can make bad
15 jobs better. We can create good jobs. Yes, we can do all
16 of that. It's not seamless, right? And there's not a
17 silver bullet. And there's, not a single Just Transition
18 policy that will do that. But I think we can do all of
19 those things.

20 But it's a big lift and it requires a lot of
21 coordination, another thing that we're not always the best
22 at. So I'm looking forward to working with all of you to
23 sort of bring that together.

24 So I say yes, I do see it as a source of hope. I
25 also think the clean energy transition is one of our

1 leading sources of hope, because this is a place where you
2 can create lots of good jobs now, right? And we can move
3 into that, so I think that this is -- working in this
4 sector is a place that gives me a lot of hope that we can
5 do this transition right.

6 COMMISSIONER GUNDA: That's good. That is
7 beautifully put. Thank you. And I think it seems such a
8 big lift and then just kind of having one of the key
9 elements that we took away from SB 100 was it's technically
10 feasible. Just having that kind of sets the regulatory
11 certainty in kind of moving the ball forward. And just
12 kind of having that high level, yes it's achievable, in
13 making sure most of us are carried forward. That it's the
14 training or whatever it might be, is a good kind of hope to
15 carry together as we move the transition forward. Thank
16 you.

17 MS. WHITE: Agreed, thank you so much for that
18 comment.

19 COMMISSIONER MCALLISTER: Sarah, thank you so
20 much for being with us. I just want to do a last call,
21 we're a little bit over time, a last call for questions
22 from the dais? I know we know where you are, and you know
23 where we are, so we can keep getting in touch.

24 I did --

25 COMMISSIONER MONAHAN: Yeah, and I've got to say

1 I don't have a question but, Sarah, I'm really hoping we
2 can follow up separately. Because I have some really
3 specific, targeted questions for you on zero emission
4 vehicle infrastructure. So it would be great to pick your
5 brain.

6 MS. WHITE: For sure. I'm available, so thanks
7 everyone.

8 COMMISSIONER MCALLISTER: Great. And we did have
9 a couple of questions come in from the Q&A, just asking for
10 the link to the community resilience efforts that you refer
11 to. So if you do have a link we can post it in the chat or
12 we can follow up later.

13 MS. WHITE: Let's follow up later. I can give
14 you the best folks to talk to you about that.

15 COMMISSIONER MCALLISTER: Okay, great. Perfect.
16 Thanks very much all right. Well, thank you so much,
17 Sarah. We really appreciate all you're doing, and the
18 whole team at OPR, and appreciate your being here today.

19 So with that let's move on to the next panel.
20 Heather, do you want to introduce Shrayas and our panel?

21 MS. RAITT: Sure. We have Shrayas Jatkari and he
22 is a Policy Specialist on equity, climate, and jobs at the
23 California Workforce Development Board. Shrayas works to
24 address good jobs, environmental protection, and access to
25 quality training and employment in a holistic way.

1 We are very pleased to have you here, go ahead.

2 MR. JATKAR: Yes, thank you and I'm so grateful
3 to be part of the workshop today and that this workshop is
4 even happening. You know, two sessions on workforce is
5 pretty impressive.

6 And so yeah just very quickly again I'll say
7 again, my name is Shrayas Jatkarn here at the California
8 Workforce Development Board. For those who don't know our
9 agency, we are one of seven departments within the State's
10 Labor and Workforce Development Agency and I'll both be
11 moderating our final panel of the day and speaking as well.

12 So very quickly I just want to mention who our
13 two other panelists are that'll go after me. Julia Hatton
14 is the President and Chief Executive Officer for the Rising
15 Sun Center for Opportunity. And Randy Young, is the Codes
16 and Standards Representative at Sheet Metal Workers Local
17 104.

18 And for the CEC folks, it may be interesting to
19 point out that both Julia and Randy have a connection to
20 the Energy Commission's Prop 39 program. Rising Sun was
21 one of our grantees under the Prop 39 K through 12 program
22 where we were investing in multi-craft pre-apprenticeship,
23 which is great to hear has come up quite a bit so far this
24 morning. And for those who may not know, Randy was
25 appointed to the Prop 39 Citizens Oversight Board earlier

1 this year.

2 And very quickly I'll say that we were hoping
3 that we would have a couple other panelists. One person
4 had a family emergency unfortunately and couldn't join us
5 this morning. He would have talked mainly about the
6 community colleges, which again has come up quite a bit.
7 So unfortunately we don't have James with us today, but I
8 just wanted you to know that we had tried to organize that.

9 And we had also had requested somebody from
10 Southern California with a community organization that's
11 been involved with the utility pre-craft trainee program.
12 A very exciting long-standing program that's been developed
13 between the LA Department of Water and Power, community-
14 based organizations like SCOPE and the Los Angeles Alliance
15 for a New Economy, and IBEW the Electrical Workers Union in
16 the L.A. area.

17 But unfortunately it's just the three of us, but
18 I think you'll get a good show here from us to hopefully
19 hit on some of the things that have come up before in the
20 morning session, that we can go into a little bit more
21 depth about.

22 And before going into it, I just want to really
23 acknowledge and appreciate the conversation today. I've
24 been with the State Workforce Board for a little over three
25 years. I came from the public interest advocacy realm

1 before that, where the conversations with agencies like the
2 CEC were actually very much about like, why should the CEC
3 care about jobs and workforce? So for today, the
4 conversation to be focused on how and what the role is of
5 the CEC and even the Public Utilities Commission, and how
6 we're addressing workforce and all the talk around equity
7 and inclusion and job quality and access, it feels night
8 and day.

9 So it's a really great testament as I think Sarah
10 mentioned to the work of advocates for many years, the work
11 within agencies for many years. And I think this is this
12 is going to be a great session.

13 So to just distinguish our panel from the
14 previous one a bit I think we're really trying to get into
15 the "how." How do we get there? How do we support the
16 building decarbonization measures that are needed? And how
17 do we support California's transition to carbon neutrality?
18 So I think with our panelists you'll hear maybe a little
19 bit more of the sort of operations. And a little bit more
20 of the ecosystem, not just on the training side but also
21 about jobs and employment, which I know others spoke about
22 earlier.

23 So I think you know first to say when we think
24 about like well how do we get here or to get there, what's
25 that endpoint? And so, in my mind, what I was thinking and

1 what I've heard so far today, is that we really have sort
2 of four key objectives.

3 The first one is you know sort of the most basic,
4 do we have enough workers in California to get the job done
5 to actually decarbonize and electrify our buildings?

6 That we actually achieve the energy and emission
7 targets that we set out by making sure we have quality work
8 being performed that actually hits our targets.

9 And importantly, I think, where we're trying to
10 go, is making sure that the work, the investments to
11 decarbonize our building, support quality jobs and support
12 greater access to those jobs for target populations.

13 So I think all of those things kind of you know -
14 - to set that framework I think is important, and I think
15 as has been noted I think this is the high-road framework.
16 And I don't have a very clever joke, but I just want to say
17 that I think today's workshop sets the record for the use
18 of the term high-road in a state agency workshop, which is
19 tremendous.

20 So let me just say a bit about the high road and
21 what it means in terms of sort of operationalizing. I
22 think Sarah said a lot of this already, so some of it is
23 repetition, which might be helpful but hopefully I'll add a
24 bit more.

25 So, when we think about a high-road approach to

1 economic and workforce development, as has been said, we
2 start with the jobs and not with the training to really
3 understand what's the real demand for labor and workers.
4 The modeling provides again that sort of big picture of
5 what's possible.

6 And it's then turning to creating an establishing
7 industry-based training partnerships, as was mentioned,
8 where we actually understand who's hiring for what, when;
9 the real sort of actionable pieces of information to
10 develop workforce training and understand how we link the
11 supply side of the labor market and the demand side of the
12 labor market. How we connect training and jobs to one
13 another.

14 I think one thing that's important to say here
15 that hasn't been mentioned enough, is that this focus on
16 building industry-based partnerships -- and "industry" is a
17 broad term. We don't mean that as a business focus, but as
18 an industry sector if you will, that this is also about
19 meeting employer and business needs and interests. That,
20 in fact, an equity agenda is only an equity agenda insofar
21 as it connects people to industry demand for skills and the
22 knowledge that's needed. And so as much as the high road
23 is, is absolutely about addressing inequality and ensuring
24 workers have access to good jobs.

25 It's also ensuring that employers have access to

1 good workers, skilled and trained workers. And that they
2 are remaining competitive as we move towards carbon
3 neutrality.

4 Many folks have said this already, but it really
5 bears repeating, which is that to get to equity we need to
6 have quality jobs. They go hand in hand.

7 I'll leave that for the moment, and just hit on
8 this last point, which I think has also been sort of
9 addressed a bit. And I'll say more about this, is to
10 really address equity, to create the pathways for new
11 workers into the occupations and the industries that are
12 going to be relevant in building decarbonization, we have
13 to think about different treatments for different types of
14 workers. And when we think about new entry level workers,
15 it's really important to think about comprehensive
16 foundational training and supportive services that I think
17 a few folks have mentioned.

18 And that really is what we at the Workforce Board
19 have piloted for the last several years with Prop 39 money
20 that was invested in our High Road Construction Careers
21 Program, so I'll say a bit about that in a few minutes.
22 But I wanted to start with the jobs as we often promote
23 here.

24 And so again I think a lot of this has been said,
25 which is tremendous. So bear with me here. I think one

1 point, and I think it was Neha who made this most clearly,
2 is that we need to understand as a starting point, that the
3 "clean energy work" is embedded in the existing industries.
4 And we need to understand the dynamics and the structure of
5 those existing industries. So that we are again paying
6 attention to the kinds of interventions needed to ensure
7 job quality, job access, and quality work, right?

8 So mainly in this sector we're talking about, you
9 know, the construction industry when it comes to both
10 building retrofits and installing more renewable energy to
11 meet a higher electrical demand. This is, you know utility
12 work. And there's some jobs in manufacturing. And we need
13 to understand, again as I think Neha pointed out, that each
14 of these industries has high- and low-road employers. And
15 so our job, I think, is to make sure that we are paving the
16 high road and closing off the low road.

17 Just as we don't just magically have greenhouse
18 gas emission reductions, but we have deliberate policies
19 that mandate that. The same way, we need deliberate
20 policies and interventions that mandate good jobs and
21 better access to them.

22 And so I think I'll just very quickly say this is
23 where the Energy Commission and the Public Utilities
24 Commission actually have a unique role to play. I think
25 this is a role that only actually agencies like the CEC and

1 the CPUC can play, which is setting the terms and
2 conditions on grants, on contracts, on any investment to
3 ensure good labor market outcomes. Again, we already do
4 this with our energy policy to ensure good environmental
5 outcomes. You don't get a rebate for buying any water
6 heater. You've got to buy one that meets, that's above and
7 beyond industry standard, right? And so it is the same, I
8 think sort of theory of change if you will, that we need to
9 set a high bar. And pave the high road with clear terms
10 and conditions on our investments.

11 And this is where we have leverage as the state
12 to make sure that, as we are investing public dollars, we
13 are creating those public benefits. Others have kind of
14 outlined some examples of what these kinds of job quality
15 and job access measures could look like in our funding
16 mechanisms. You know, wage standards and responsible
17 contractor standards, particularly in the residential or
18 where our clean energy work is in the residential sector.
19 Ideas like aggregating projects to create bigger scale, you
20 know bundling of projects which could then be complemented
21 by project labor or even better yet, community workforce
22 agreements.

23 On the job access side, setting targeted hiring
24 requirements. You know, we know that contractors -- or it
25 is likely that they will be hiring some new workers to meet

1 the demand as this work grows. They could be held to
2 targets like of "X percent of new hires," so X percent
3 should come from specified priority populations. Those
4 kinds of targeted hiring mechanisms are very important.

5 And at the same time, they should be complemented
6 to the extent possible by probably more on sort of within
7 our wheelhouse. But just to say that mentorship and
8 ongoing support for new recruits is hugely important if we
9 want them to stay in the industry. It's one thing to
10 create the pathway and create the sort of demand or
11 requirement for hiring folks who are underrepresented in an
12 industry. If there's no support for them once on a job
13 site though, they may not last very long.

14 And then lastly one other idea that I'm not sure
15 if folks have mentioned too much, but to some extent we can
16 make better choices, or different choices I should say
17 really, in terms of where we're -- how we're designing our
18 programs and where we're investing our money. You know, a
19 term that folks may have heard of, "the MUSH sector":
20 municipalities, universities, schools and hospitals.
21 Public sector buildings is where there's already a fairly
22 high bar in terms of job quality. And so when we invest in
23 building decarbonization in those public buildings, we
24 better guarantee the sort of labor market outcomes that we
25 seek.

1 Not to say we should ignore the residential
2 sector, but just again to point out these important
3 differences.

4 And let me wrap up this section by saying, and I
5 think Sarah alluded to it, that this is the job that I do
6 day to day. I've started what I call the High Road Climate
7 Agency Partnership Initiative here at the Workforce Board
8 where my day job is basically working with the CEC, the
9 PUC, CARB, and anybody else to help basically provide our
10 advice and guidance and direct assistance to address and
11 integrate these kinds of jobs quality and job access
12 measures in funding programs.

13 And Commissioner Shiroma, I think, was just
14 referencing the Energy Savings Assistance Program where you
15 know, for instance, we had provided some thoughts about how
16 to address wage standards. Which I'm glad to see that the
17 final decision on that program at least leaves the door
18 open to considering that in the future.

19 But please come to us. This is, again the work
20 that we do is here to support our sister agencies,
21 particularly those involved in energy and transportation,
22 to again make sure that our public investments are setting
23 clear terms and conditions on the labor market outcomes
24 that we seek and we're here to help with that.

25 I'm getting the time signal, and I know we

1 already started a little bit late, so unfortunately I'm
2 going to just say a couple of quick words on the training
3 side. But I'm happy to answer questions about our multi-
4 craft pre-apprenticeship program. Again, this is a program
5 that we sort of seeded with Prop 39 money over the last
6 several years. And based on the success of that, we've
7 received money from the gas tax, from Senate Bill 1, that
8 we've started to put out into the field. We also have
9 greenhouse gas reduction fund money that we're using to
10 invest in again, multi-craft pre-apprenticeship.

11 The training -- I think you'll hear more about it
12 from Julia in a moment -- and again happy to answer any
13 questions about sort of the process and the overall sort of
14 framework of this program.

15 The only thing I'll leave you with here is, is
16 that we're trying to design -- we are running this in sort
17 of a systematic fashion. This is a program that's trying
18 to connect folks to apprenticeship and other quality
19 construction careers. And it's for construction work writ
20 large. (phonetic) It's not a program for building
21 decarbonization or for renewable energy, it's the
22 construction industry by nature goes from project to
23 project. So to have a solid career in the construction
24 trades this program provides the foundational training that
25 helps people get on to that next step in their career

1 pathway whether that's apprenticeship or other placement
2 opportunities.

3 And so we think that this is really again a
4 systematic approach to addressing our workforce needs,
5 whether it's building offshore wind, constructing EV
6 charging infrastructure, or decarbonizing our buildings.
7 It's not sort of task and project or program oriented, it's
8 really industry based.

9 So I would love to share more about that. I'll
10 provide on the record, after the workshop I'll submit a
11 couple of documents that I think summarize this work and
12 the benefits that we've seen, the impact that this program
13 has had. I'll submit both our workforce guidelines that we
14 created under SB 1. And don't worry about the title, this
15 is again basically 10 standards for multi-craft pre-
16 apprenticeship in California and I'll also provide a link
17 to our final report on the Prop 39 program, because I think
18 both of those documents really lay out again how we did
19 what we did, and why we did it this way. Again trying to
20 make sure that we're addressing long-term career
21 opportunities for disadvantaged workers that supports
22 carbon neutrality. And works within the industry structure
23 that we have.

24 So I'll wrap it up there. And again based on
25 time I'll just very quickly turn it over to Julia Hatton

1 with Rising Sun Center for Opportunity.

2 MS. HATTON: Great. Thank you so much. And a
3 big double click on everything that you just shared,
4 Shrayas.

5 I'm going to spend most of my time, I think,
6 talking about what Rising Sun does and sort of offering
7 that as a model or models for workforce development in this
8 space. And talking about the best practices and policies
9 that can support these types of models. I'm the CEO at
10 Rising Sun. I have been with the organization for the past
11 nine years and I love what I do. I'm lucky enough to get
12 to say that, so I'm excited to share with you today.

13 A little background on Rising Sun. We're a
14 nonprofit community-based organization. We've built career
15 pathways for economic equity and climate resilience since
16 1994. And workforce development is the primary mechanism
17 by which we deliver on our mission. So we have job
18 training and employment programs for both youth and adults
19 in the Bay Area and in San Joaquin County that support
20 individual and community resiliency that combat climate
21 change, and that build economic equity.,

22 So I'm biased right, but I think there's several
23 things that make Rising Sun special and that kind of make
24 us stand out in the space. One is this triple focus
25 mission at the intersection of workforce, climate, and

1 equity, right? Everything we're talking about today.

2 Next is our communities, so we prioritize
3 opportunity youth, for youth who are disconnected from work
4 or school, women, people with insufficient income, and
5 people in reentry or who've been impacted by the criminal
6 justice system. And with that we take a whole person
7 strengths-based approach to working with our participants.
8 So our programs are designed with direct input from those
9 participants, as well as the larger community partners and
10 crucially, employers. If I have slides, we can go to slide
11 3? Oh, wonderful. Thank you.

12 So the final thing is that we focus on high-road
13 careers and pathways that offer family-sustaining wages and
14 benefits. And we have specific expertise in the energy
15 efficiency industry, and with the building and construction
16 trades, and emerging expertise in residential building
17 decarbonization and electrification. Next slide.

18 We run two main workforce development programs:
19 Climate Careers and Opportunity Build. And each uses a
20 different model and serves a different age group.

21 So, Opportunity Build is a training and placement
22 pre-apprenticeship for adults with barriers to employment,
23 ages 18 and up. And we prepare people for careers in union
24 construction and help them get and then keep those jobs.
25 So this model is about removing barriers, getting people

1 into jobs that they can live on, and building long-term
2 careers and wealth.

3 Climate Careers, on the other hand, uses a direct
4 employment model. So it's a social enterprise. We hire
5 and train youth from low-income households, ages 15 to 24.
6 They come on to our payroll. They are our employees and
7 they work as energy specialists in their own local
8 communities.

9 And this approach is about preparing youth for
10 the world of work through direct paid experience and
11 providing specific industry exposure. It's about building
12 for the future with a first green job. And I'll go into a
13 little bit more detail in the next slide about both
14 programs.

15 So Climate Careers is our direct employment
16 program for youth. We've been running this for over 20
17 years, so since 2000. Climate Careers has trained and
18 employed local youth to provide residents with free energy
19 efficiency and water conservation services each year. And
20 we call these green house calls.

21 So, through this social enterprise model, youth
22 are gaining real-world work experience as energy
23 specialists. They participate in professional development,
24 workshops, and coaching. They fight climate change and
25 then they help impacted residents of their communities save

1 energy and money.

2 Our youth are ages 15 to 24. They're all from
3 low-income households. And over these past 20 years about
4 2,000 of them have made over 50,000 local homes more energy
5 efficient, supporting their own futures and that of our
6 planet. So for many it's their first green job or their
7 first job period. And we're now also starting to offer
8 externships for additional career exposure and experience.

9 Operationally, we hire about 150 young people
10 across the 10-county region each year. We offer wages of
11 \$16 to \$18 an hour and our youth can come back each year in
12 positions of greater responsibility. Some become summer
13 managers and actually a fair number actually become Rising
14 Sun permanent staff.

15 So, again operationally this is expensive and
16 complex. We go from a staff of 25 to a staff of nearly 200
17 in the summer months. And all things held static, program
18 costs are always rising due to increases in living wage.
19 But from an access and an equity perspective, we think it's
20 important to offer youth a real good-paying job. And
21 studies show that these types of paid positive work
22 experiences early on, or these earn and learn
23 opportunities, build resilience and increase the likelihood
24 of future career success.

25 I wanted to spend a little time on Climate

1 Careers, because it has received partial funding from
2 California utility ratepayers, from PG&E through 2006 to
3 2020. And through BayREN from 2019 to present. Also just
4 to note that we are often asked why we don't become an ESA
5 contractor. Why we haven't become an ESA contractor. And
6 truthfully it's because we can't pay people good wages on
7 that program model. So we've been able to sort of adapt
8 ratepayer dollars through this different model to support
9 good jobs. Next slide.

10 Opportunity Build, so Opportunity Build is our
11 pre-apprenticeship. We've heard a fair amount about that
12 today. We do use the Multi-Craft Core Curriculum. We've
13 been around offering Opportunity Build since 2009. And
14 since then we've offered a pathway out of poverty for
15 nearly 1,000 people through training for these high-road
16 careers. And Opportunity Build takes a whole person
17 trauma-informed approach to job readiness. And combines 11
18 weeks of skill development and hands-on training with a
19 year of case management, job placement, and retention
20 support, as well as wrap-around and other supportive
21 services, right.

22 So, each year adult job seekers, more than half
23 of them women and nearly half in reentry, enroll in our
24 certified Apprenticeship Readiness Program to break these
25 barriers that they faced to employment. They receive a

1 small stipend during training and then they graduate with
2 their union-approved Multi-Craft Core Curriculum
3 Certification, as well as their First Aid and OSHA 10
4 certificates, ready to start a career in the building
5 trades construction. Either industries at the forefront of
6 this transition to a clean economy.

7 I'll mention that we proudly have one of the only
8 all-women MC3 programs in the country, Women Building the
9 Bay, which we run once per year. Next slide.

10 So Opportunity Build in particular, is an example
11 of how workforce development is about so much more than
12 just the training. I mentioned that it's an 11-week
13 program, so that means that our training lasts for 11
14 weeks, but during that 11 weeks and for a whole year
15 afterwards, there's case management support barrier
16 removal, job placement, retention support, mental health
17 and substance use disorder counseling, just being there
18 with and alongside our graduates.

19 It costs \$12,000 per person per year to provide
20 this type of comprehensive workforce development
21 programming, and so it is an investment, right? Workforce
22 development is an investment.

23 And the last thing I'll say is that it's not
24 always that difficult for someone to get a job, it's
25 keeping the job that can be really challenging. And so

1 that's why things like barrier removal, mental health and
2 this trauma-informed whole person approach is so important.
3 You know, it's about supporting people with the things in
4 their lives that make keeping a job hard, whether it's not
5 having a driver's license or it's not having a place to
6 live right. So that kind of retention support has to be
7 built into workforce development programs. Next slide,
8 please. Thank you.

9 So some additional best practices and workforce
10 development beyond this whole person comprehensive
11 approach, I'll just sort of list through these. First
12 things first, equity in, equity out, right? Equity has to
13 be the foundation and the center of this work or you're
14 just not going to get equitable outcomes. Part of getting
15 there is by incorporating workers and job seekers into the
16 program design. So to build a strong program you need to
17 build it for what your participants want, not what you
18 think they need. Excuse the garbage truck that's choosing
19 to go by my house at this exact moment.

20 Employer relationships are also a key part of
21 participatory design. Both Sarah and Shrayas spoke to
22 this, the jobs have to be there. Don't train for
23 training's sake. The training commitment also needs to be
24 commensurate with the career opportunity, and it has to be
25 career advancing. So it does it make sense to have a 100-

1 hour paid internship? Does it make sense to require five
2 additional days of training for a 100-hour paid internship?
3 Will that extra certificate actually gives someone a better
4 chance of getting a job.

5 And then there's trust and incentives. I'm short
6 on time so I'm going to cut this a little bit close.

7 Shrayas talked about some of the incentives and then of
8 course metrics. And I will say -- I'm trying to decide
9 what I want to focus on here. Let me speak to a new
10 project that's exciting; if you can go to slide 10, please.

11 Rising Sun is really excited to be convening a
12 new High Road Training Partnership or H RTP around
13 residential building decarbonization , alongside union
14 community-based organizations, city government, local
15 agency, research and equity partners.

16 And our vision is a residential building
17 decarbonization industry that supports quality jobs,
18 engages a qualified workforce, and provides stable career
19 pathways for disadvantaged workers, while simultaneously
20 reducing greenhouse gas emissions and building more
21 resilient communities. So the shorthand is that for us
22 success means that residential decarb jobs will be high
23 road. So our intent with this project, which is just
24 launching this summer, is to address a lot of the questions
25 and issues that you've heard about today. So no pressure

1 there, we're going to get this all figured out in 22
2 months.

3 I will stop there, but I'm excited to dive deeper
4 into any of the things I've touched on in the Q and A.

5 MR. JATKAR: Thank you so much, Julia. And so
6 yeah, we'll turn it over to Randy Young with the Sheet
7 Metal Workers Union Local 104. Thanks, Randy.

8 MR. YOUNG: Thank you, and you know my
9 presentation was put together well long before today's
10 event took place. And had I had it to do all over again I
11 probably would have changed some things. Like I probably
12 could have addressed a lot of the questions that were asked
13 earlier in the presentation. But that being said, and for
14 sake of time I'm just going to kind of skim through mine,
15 because I did write down some talking points that I'd like
16 to talk about later if that's okay, if time's permitting.
17 Next slide.

18 First of all I'm ready Randy Young with the Sheet
19 Metal Workers Union Local 104. I've been in the sheet
20 metal industry for about 32 years. I'm probably the only
21 one on this call that's actually served a state-approved
22 apprenticeship program. And I may be one of the only
23 individuals on the call that actually came from what they
24 would consider a disadvantaged community back in the '80s.

25 So a lot of this is really important to me, and I

1 really want to help drive the needle to make the change to
2 help bring in disadvantaged communities and disadvantaged
3 workers. And one of the key focuses that's been brought up
4 today as a residential market, and later on in my slides I
5 got some information that pertains to the cost of low-wage
6 earning jobs. And the study was primarily done in the
7 residential market, so it ties directly to what we're
8 talking about. Next slide, please.

9 So California's Energy Commission mandate is
10 driven by legislation that's passed on to the Energy
11 Commission. And Senate Bill 1389 requires the Energy
12 Commission to conduct assessments and forecasts of all
13 aspects of energy industry, supply production,
14 transportation, delivery and distribution demand, and
15 prices. The Energy Commission shall use the assessments
16 and forecasts to develop energy policies that conserve
17 resources, protect the environment, ensure energy
18 reliability, enhance the state's economy and protect public
19 health and safety.

20 California has also enacted a suite of policies
21 building towards achieving an electricity system that has
22 100 percent zero carbon by 2045, leaving us about 24 years
23 to get that done. Next slide, please.

24 Workforce training and development is going to
25 require to make significant shifts. Building

1 decarbonization will involve the shift from fossil fuel
2 technologies to efficient electric solutions. And shift in
3 the workforce that installs and maintains those
4 technologies. The shift will require the existing
5 workforce to learn new technologies and continually adapt
6 their training as the technology continues to advance. The
7 workforce needed to support this must be well versed in new
8 electric technologies, and adapting systems, and
9 technological advancements that will continue to engross
10 the market in the years to come.

11 Requirements for all-electric new construction
12 will also create immediate significant job losses for
13 construction workers who currently make a living installing
14 gas piping and appliances in buildings. Actions with such
15 significant job loss impacts must be coordinated with
16 concurrent steps to ensure these job losses will be
17 minimized or mitigated.

18 And I really want to thank the State of
19 California for taking that into consideration, because I
20 think too many times we make changes, create policies, we
21 don't really think about the lost jobs. And now more than
22 ever, social equity has become an important issue. And
23 that's something that everybody should always pay attention
24 to, but I'm really happy to see the Energy Commission is
25 conducting this workshop. And this is a high focus.

1 Decarbonization efforts must be paired with
2 concurrent step to create high quality energy and water
3 efficiency work to replace lost jobs for existing workers
4 and create new, high quality jobs and career paths. Just
5 Transition requires providing a glide path for workers
6 directly affected by these changes. Creating new low-wage
7 jobs for new workers does not mitigate the loss of a good
8 job paying career for established workers.

9 Sorry, I lost my place for a minute. The
10 elimination of building gas piping work should be addressed
11 through the concurrent creation of replacement work for
12 those construction workers most directly impacted.
13 Example, through the concurrent adoption of indoor water
14 reuse requirements and to address drought impacts from the
15 climate change.

16 The gas utility workforce requires a clear plan -
17 - Again, sorry I lost both my spot on my page. The gas
18 utility workforce requires a clear plan and a reasonable
19 timeline to allow for retention, retirement, and
20 retraining. If we have about 23 years to get this done,
21 we're going to see a lot of the workforce retire out and
22 new guys come in. And we've got challenges on how we're
23 going to get these new guys in and get them trained to the
24 proper levels we need.

25 The energy savings lost due to the use of

1 untrained workers is a significant barrier to achieving
2 greenhouse gas reduction goals. A study by the University
3 of California, Berkeley found that the lack of standardized
4 workforce training requirements resulted in poor quality
5 construction and substandard energy efficiency performance.
6 Utility energy efficiency studies have found that less than
7 half of the construction workers installing residential
8 HVAC equipment have been trained in industry standards,
9 leading to "high failure rates for job performance and
10 routine tasks."

11 The use of an undertrained workforce is also a
12 safety issue. Poor quality construction can result in
13 fire, electrocution, gas leaks, water leaks, mold, sewage
14 leaks and other health and sanitation concerns. I forgot
15 to tell you to advance the slide I'm sorry.

16 One more as well, so now we kind of take a look
17 at the current workforce as per the 2020 Bureau of Labor
18 Statistics Study. And you can see that we have a similarly
19 aged workforce across most sectors, with the exception of
20 hospitality and leisure. I didn't include those
21 demographics, because I don't really think that they're
22 going to really play into the decarbonization workforce.
23 But I did include coal mining, as well as oil and gas
24 extraction as these industries will be directly affected by
25 the decarbonization of California. And this is an area of

1 industry that we can look to retrain some of the workers
2 for the new work coming along. I've also included
3 manufacturing and construction. That's two industries that
4 the highest populated workforce.

5 All industry shown on this chart will be affected
6 by the decarbonization shift. And as you look at that
7 chart, you can see that construction and manufacturing have
8 the highest number of young people coming into the trade or
9 into the industry. But they also have one of the largest
10 populations of individuals working past the age of 64. And
11 that's primarily because a lot of the construction industry
12 is driven by a cost basis and it's low bid on bid day
13 typically gets the award. Next slide, please, when you get
14 there.

15 We find that almost -- so tying into that we find
16 that almost half of families in construction in California
17 are enrolled in a safety net program at an annual cost of
18 over \$3 billion per year, by the residents of the State of
19 California. By comparison, just over a third of all
20 California workforce has a family member enrolled in one or
21 more of the safety net programs. Next slide, please.

22 Here you can see the breakdown, the number of
23 construction working families enrolled, and adult Medicaid.
24 And again this is just in California from 2015 to 2019.
25 Over 200,000 in Children's Medicaid; 140,000 EITC; TANF

1 20,000, and SNAP 120,000 with a total of any program
2 enrolled or any participation in these programs, at 330,000
3 or 48 percent of the construction workforce enrolled in
4 these programs. Next slide, please.

5 And this slide just shows the cost breakdown of
6 where that money goes and how you come up with a \$3.35
7 billion that the California taxpayers pay for low-wage
8 earning, low-skilled residential workers. And this came
9 from the UC Berkeley Labor studies paper. I wish I would
10 have written down where it came from. Next slide.

11 So some of our concerns as organized labor, and I
12 think everybody in the industry, we look about the
13 availability or worry about the availability of a qualified
14 workforce. A qualified workforce will need to be available
15 in urban areas and in rural communities, and especially in
16 disadvantaged, hard to reach, and otherwise underserved
17 parts of California.

18 We have concerns about retraining members from
19 displaced and disrupted workforces. As you can see
20 earlier, the median age of the California construction
21 workers is nearly 43 years old. Other industries likely to
22 be impacted by decarbonization have a similarly aged
23 workforce. And Just Transition must happen concurrently
24 not years after workers lose their job. We are concerned
25 about attracting a younger workforce. And next slide,

1 please.

2 And my team has put together some possible policy
3 solutions to alleviate these concerns. Our responsible
4 contractors standards are key to achieving workforce
5 training and development goals. Workforce training and
6 development cannot be achieved when the market incentives
7 project costs over project quality. Contractors will not
8 invest in training and support for disadvantaged worker
9 outreach programs if it will close the barrier to winning
10 bids.

11 Develop a program level standard that
12 prequalifies installers, especially during early adoption
13 periods to establish a quality standard that consumers can
14 expect. And to incentivize workforce development by
15 manufacturers, installation companies, and partners.

16 As technologies continue to evolve rapidly
17 manufacturers must be able to feed the latest installation
18 information into established training programs. And we
19 need to establish targets or goals to ensure employment of
20 low-income or difficult-to-employ workers in well-paid
21 living wage or other threshold positions; to establish
22 concurrent equitable Just Transition plans; to address job
23 losses for existing workers.

24 And some additional concerns, our workforce
25 training and development goals can be effectively achieved

1 through the support of apprenticeship programs.
2 Apprenticeship programs ensure workers hired by contractors
3 have the skills necessary to construct buildings correctly
4 and safely. Apprenticeship program training curriculum
5 includes specific training on safety and on energy and
6 water efficiency measures. And this training is
7 independent were reviewed and approved by the California
8 Division of Apprenticeship Standards.

9 And it looks like my time is up, so I will leave
10 it there. But the slides are available for everybody if
11 they would like to review them and thank you very much.

12 MR. JATKAR: Thanks Randy and Julia again.

13 So I think, why don't we go to the Commission
14 first. And I can also step in with some questions, but I
15 think it'd be great to hear from the Commissioners first.
16 You may have some questions or comments. I think you're on
17 mute, Commissioner McAllister.

18 COMMISSIONER MCALLISTER: Sorry, I'm double muted
19 once again. To Shrayas, and Julia, and Randy, thanks so
20 much for your presentation. It's really tremendous work
21 you're all doing, and you know we've intersected reasonably
22 often over the course of all the various work we're doing,
23 and across our building sector. And I just -- you always
24 really stand out -- you and your immediate colleagues
25 really always stand out as leading the way towards where we

1 need to be in California. And so thanks for the example
2 you set, and the specific work that you do.

3 I wanted to actually encourage you Shrayas, to
4 sort of have a dialogue, because I feel like there's so
5 many things we could talk about. And I guess I wanted to
6 sort of make sure we cover the most important things that
7 need to happen and what we as the state can do to encourage
8 these kinds of standards. I think you know, the
9 responsible contractor policy is one thing that came up.
10 And you know really focusing on pre-apprenticeship and
11 apprenticeships is another thing. You know, what levers we
12 have to pull, certainly we have contracting at the state.
13 And we have program requirements, I think Shrayas, you
14 brought that up. Are there any other kind of key elements
15 that we should be focusing on there really are not getting
16 the attention or haven't kind of been surfaced
17 sufficiently?

18 MR. JATKAR: I mean, I'll just start and maybe
19 I'll cue you up, Randy, on this one. And then Julia, you
20 should chime in as well. Which is I think you've hit kind
21 of the big ones like contractor standards and pre-
22 apprenticeship. And I think a few people have spoken to
23 this. From the industry, from you know state agencies,
24 from the utilities, as the workforce system learns about
25 new technology and new skill needs, being able to share

1 that information with us. And whether or not it makes
2 sense to develop new certifications or other types of
3 credentials, is another way to help support this industry.
4 And I just share that as an example of sort of a different
5 flow of information.

6 So you know I think, Randy, if you want to jump
7 in with any examples. Or I know some of the -- I think it
8 was maybe Philip who spoke about in the previous session,
9 some specific examples. But that's also a really important
10 kind of partnership opportunity, as folks who are out there
11 in the field doing this work or responsible for getting the
12 work done, as you hear about sort of needs to the workforce
13 system might be able to address, sharing that information
14 would be really helpful.

15 MR. YOUNG: Well, I'll take a stab at it and I
16 did have something that that Philip mentioned that I wanted
17 to comment on, so it kind of ties into it, the reactive
18 versus proactive.

19 In the unionized sector, he's right it used to be
20 that way 50 years ago we were reactive. We weren't
21 proactive. We didn't look for the new emerging technology
22 that's coming down the pipe, and train to it, because there
23 was a problem. You train to the technology that you hear
24 is coming, and then it never comes. So then you train all
25 these individuals for this technology that never hits.

1 That never hit or to fruition, but we've learned from our
2 mistakes and we look at these new trends of new
3 technologies coming down the pipe to train to. In the
4 event they do come, we want to be ready, because we've been
5 caught flat-footed before. And it's cost not only
6 membership, but it's cost the industry advancements moving
7 forward.

8 So looking at new emerging technologies and new
9 processes that come down the pipe, the sheet metal workers
10 for one are at the forefront of looking at what's coming in
11 and trying to adjust to it, adapt and create the training
12 to do it.

13 Another benefit that we have is standardized
14 training, so our international overseas putting the
15 curriculum together for the entire United States. And it's
16 not all the same. I mean all the needs aren't the same
17 throughout the United States, but the curriculum available
18 is consistent. So for example, it used to be nuclear
19 energy. We used to train how to do nuclear decontamination
20 and other processes at nuclear plants. Those got phased
21 out, so we had to train to different processes.

22 One thing that we are really moving into right
23 now is the indoor air quality. And that's been something
24 that we've learned from the pandemic and we've helped
25 create AB 841. And it's not new to us, but it's new to the

1 industry -- the testing requirements and the assessments,
2 building assessments, to make sure that these buildings are
3 operating properly. So we got in front of that prior to
4 the pandemic. We were already doing it, so we looked at
5 that as an opportunity to help move the industry forward.
6 And make sure that everybody was trained adequately to that
7 level.

8 And as far as partnerships, Julia is right on. I
9 believe we partner with Rising Sun down in San Joaquin from
10 our Stockton office, but here in Sacramento and in the Bay
11 Area we cover, 49 counties and each area has a Rising Sun
12 or somebody like Rising Sun that we've partnered with that
13 is deep rooted in these disadvantaged communities. And
14 gives us an opportunity to bring in these people from these
15 disadvantaged areas, because if you look at the labor force
16 -- and it's not just in the unionized sector -- we're
17 stale, pale, and we're male. And we can't relate to the
18 same individuals in these disadvantaged communities all the
19 time, so it's important for us to make those partnerships
20 to link bringing those individuals in.

21 And another connecting point to it, is you have
22 to have the jobs to put these to. You can't in the
23 unionized sector, you can't bring people in and promise
24 them jobs, because of the high cost of labor and the
25 benefits associated with the unionized sector. So you have

1 to have jobs to be able to put them on to and that's where
2 we've been successful with like SMUD, the Sacramento Kings
3 Arena, Department of General Services, the City of
4 Sacramento with community workforce training agreements,
5 which ties direct requirements to the disadvantaged workers
6 and the disadvantaged communities. Is you get them into
7 the workforce, and not just provide them a job, but provide
8 them adequate training and a career that's going to sustain
9 them for the next 25-30 years. And in many cases take them
10 off that public assistance that they've been relying on for
11 so many years.

12 I hope that answers your question in a long way.

13 MR. JATKAR: Thank you, Julia do you want to --
14 go ahead.

15 MS. HATTON: Yeah. I mean, I think the two
16 things that are coming to mind are -- and I'm not sure, I
17 think I'm answering your question, or at least partially.
18 But two things that come to mind are the incentives, which
19 I believe others have spoken to. And just really taking a
20 look and making sure that the incentives we have in place
21 or the program structures we have in place are creating the
22 results that we want.

23 And I think I saw on a previous agenda, that you
24 already talked about cost effectiveness in energy
25 efficiency programs. And I'm a broken record on that. I

1 could I could talk about that for a really long time, but
2 that is currently set up to disincentive job quality. So
3 no matter how much policy you put in place around like we
4 want you to hire disadvantaged workers. Or we want to see
5 good jobs come out of this. That can't happen if these
6 cost effectiveness calculations are working the way they
7 are today. It just won't happen.

8 And the other thing that I think about in terms
9 of where do we need to focus more attention, is the
10 residential sector. I think this is just a huge question
11 mark and for all of the reasons that people have already
12 spoken to. You know, the commercial and industrial public
13 sector have union representation, have union coverage and
14 that's why the jobs are good. But it's really difficult to
15 get that same kind of job quality and coverage in the
16 residential sector. And yet that's where we're putting so
17 much investment and putting so much -- yes, so many of
18 these programs, these decarb electrification programs, are
19 in the residential sector, EV, solar, whatever it is.
20 That's largely not a unionized sector and that's where the
21 job quality tends to be poor. It's also where the margins
22 are really challenging for small businesses. So I think we
23 need to really, really look at the incentives there, so
24 that businesses can be successful. And they can offer the
25 quality jobs and the labor standards that we need.

1 Right now someone can go to get a job at In-and-
2 Out Burger for 19 or 19.50 an hour are you going to do that
3 or are you going to earn like 17 an hour and have to get
4 down into a crawl space or up on a roof, right? In-and-Out
5 looks pretty good in that scenario.

6 So the incentives there to me or not are not
7 lining up appropriately.

8 COMMISSIONER MCALLISTER: Great. Thank you so
9 much, Shrayas for that and Julia and Randy both.

10 Okay. I wanted to give Commissioner Shiroma the
11 opportunity to ask a question, but first I want to make a
12 point, a comment.

13 So Philip always, he's been doing this research,
14 for you know 15 years or something and really always is
15 very data rich and has a lot of provocative things to say,
16 very insightful things to say. So I would encourage
17 everyone to look at the report that he mentioned, which was
18 done under the auspices of the Energy Futures Institute and
19 sponsored by NASEO, including the State of California, the
20 National Association of State Energy Officials.

21 So it really is a national look. Lots of
22 longitudinal data, really good stuff about the evolution of
23 the energy workforce. And it makes a few points. I think
24 Phil would probably acknowledge that it's a little bit
25 difficult to sort of look at the labor and non-labor issue

1 through the data that they gather, but I think they do have
2 some insight about that.

3 But they also have some insight about the
4 diversity of the energy workforce broadly defined. I'm not
5 just talking about green energy workforce, but it actually
6 is sort of more diverse than you might think already in
7 terms of race and ethnicity. It certainly is not as
8 balanced as it needs to be in terms of gender. And so I
9 think there's a there's a lot of good data there to pour
10 over and really helpful for California.

11 Last year the state, the PUC and the Energy
12 Commission co-funded a California-specific deliverable that
13 was sort of a subset within that overall nationwide work.
14 And that was that was very helpful to kind of get a better
15 handle on the workforce here in California, so I'd
16 encourage everybody to look at that.

17 And it looks like the Department of Energy is
18 going to take that back over and sponsor it directly again.
19 The previous administration sort of disowned it. And so
20 the states had to step in and take that on and fund it,
21 which we all did. But I think better if it's sort of in-
22 house at the Department of Energy and has that long-term
23 institutional commitment. So hopefully that report will
24 continue to do what it does, year after year within the
25 Department of Energy. So just FYI, a great resource for

1 all of us in this discussion.

2 With that, Commissioner Shiroma, I wanted to
3 invite you to ask any questions you might have, thanks.
4 Thanks for sticking it out for the day.

5 COMMISSIONER SHIROMA: Thank you. And I know
6 Heather is cautioning us that we're running short on time.

7 Okay, so really this is not so much a question
8 but rather an acknowledgement that for the CPUC, we have
9 viewed ourselves as the regulator of safety of rates,
10 you're providing for discount programs and what have you.
11 And our focus hasn't been so much on economic development,
12 although the folks we regulate are very key drivers in the
13 Gross Domestic Product of the economic vitality and these
14 economic engines.

15 So I appreciate the recommendations of Randy.

16 Julia, your continuing insight on what happens
17 with those wages, and they are key in attracting people to
18 go into this line of work. I think what it means is that
19 we will need to work with the Labor Workforce Development
20 Agency, my former agency, back when I was at the Ag Labor
21 License Board.

22 But to work with you in terms of how do we figure
23 this out, when it has not been substantially within our
24 wheelhouse in terms of the wages themselves. And how do we
25 work together with the Department of Industrial Relations,

1 with the workforce investment boards, and so forth. In not
2 only crafting a policy, but also assuring that we are
3 within our legal frameworks. And I'm sure that we can
4 accomplish that synergy to figure all that out.

5 In the end the customers indeed, are supporting
6 these efforts. Yes, and supporting them for a long time
7 and I think that there is a economic benefit in the end for
8 the workforce, the investments and so forth. So it's just
9 more of a comment saying more work to follow, and I do
10 thank you all for your very valuable insights.

11 MR. JATKAR: Thank you, Commissioner. And again
12 this is in some ways our work is most advanced with you all
13 at the PUC, where we have an MOU in place and have been
14 working sort of going program by program. And looking at
15 the program and what the industries and occupations are and
16 what are the sort of interventions that might be needed or
17 useful. So I'm happy to share more with you directly about
18 that work at some point.

19 EXECUTIVE DIRECTOR CHERNOW: Yeah, now I'll just
20 you know add to that. In addition to the training is the
21 need for the continued support once people enter that
22 field.

23 So for CAEATFA's Energy Efficiency Program, we
24 have a company on contract that provides continued support
25 for our contractors who are often local and small business.

1 You know, try to make it a program that is easy for them to
2 access, easy for them to grow into, and easy for them to
3 stay engaged with as part of their overall portfolio as a
4 contractor. So I would love for somebody to come and touch
5 on the need for continued support for people as they enter
6 into these fields.

7 MR. JATKAR: Well, and actually I think at least
8 on the worker side, maybe not so much on the contractor
9 side -- and I think Julia, you could probably speak to
10 this. Rising Sun and many of our grantees have created an
11 alumni network of folks who have completed pre-
12 apprenticeship, which helps build that kind of at least one
13 level of support for folks. Which I think is you're noting
14 you know is key to retaining, retention.

15 Julia, do you want to say anything about that?

16 MS. HATTON: Yeah, so this is about the network
17 of alumni or graduates that we have in our program and how
18 we do that or?

19 MR. JATKAR: Yeah, I think that would be good.

20 MS. HATTON: Yeah, I mean to be honest this is
21 the hardest part of the work is keeping in touch with folks
22 after they've left the program. And after they've
23 successfully gotten a job, right? So we do certainly have
24 folks who come back and who will talk to our current
25 cohorts and sort of provide that model, of like this is

1 what it looks like to be in a career and succeed in the
2 career. And like stay with it, reach out to me if you need
3 me for stuff. We collect wage, placement, and retention
4 data at 3, 6, 9 and 12 months. And offer an incentive to
5 folks to provide pay stubs, but of course that's
6 challenging.

7 And so I think 1) it's about building a
8 relationship with our program participants while they're
9 with us every day. And having that be an authentic
10 relationship and then also thinking about ways to -- you
11 know, what can we offer that they really need that will
12 keep them engaged? And not just going to stay engage with
13 us for the heck of it right? We need to really be
14 providing something of value. So we actually have a
15 project that's looking at that that very question right
16 now.

17 And then I guess the other thing we do to engage
18 folks is we have program participants who sit on our Board
19 of Directors. And so we're always constantly getting that
20 type of input into our programs, and work strategy overall.

21 I'm not sure if that answers your question.

22 EXECUTIVE DIRECTOR CHERNOW: Yeah. Thank you
23 very much.

24 MR. JATKAR: Are there other questions from
25 Commissioners? No?

1 COMMISSIONER MCALLISTER: There's a lot to talk
2 about here, but I just want to acknowledge that we are
3 pretty much at the end of our time. And we wanted to ask
4 Heather and Dorothy if we do have any public comment lined
5 up that will dictate kind of how we move on at the moment.
6 Yeah, go ahead, Heather.

7 MS. RAITT: So this Heather, so far we don't have
8 any public comment. We do have a couple of Zoom Q&A
9 discussion items that we could quickly do if you'd like.

10 COMMISSIONER MCALLISTER: Oh yeah let's move
11 through that.

12 So Shrayas, Julia, and Randy, thanks so much for
13 this panel. You were a few but mighty, so thank you very
14 much for a lot of content. There's so much more we need to
15 talk about going forward and I certainly hope you and the
16 rest our panelists today can keep engaged in the IEPR as we
17 develop the report, and make recommendations. And really
18 try to keep highlighting and surfacing and digging into
19 these really large structural issues about how we organize
20 our policy and our programs. And how we resource them I
21 think critically in practice, on the ground in a targeted
22 way. To really move the needle on improving the options
23 for our workforce and the quality of the jobs that come up
24 as we transition to a zero carbon economy.

25 So thank you so, so much.

1 MR. YOUNG: Thank you all.

2 MS. CHEW: Hi. This is Kristy Chew with the Zoom
3 Q&A questions. There are more comments but I thought maybe
4 the panelists with their expertise might want to provide
5 some thoughts on it. So the first question/comment is from
6 Diane Schrader about apprenticeships.

7 "They are a critical component to skills
8 training. It would be fantastic to see a program that pays
9 contractors to provide on-the-job apprenticeships."

10 So I was just wondering if there's anybody on the
11 panel that wants to talk about paid apprenticeships and
12 maybe where people can go for assistance if that's what
13 your program has.

14 MR. YOUNG: I can speak to that a little bit. We
15 don't pay our contractors for apprenticeship, but they also
16 don't have to pay for training. So the training with the
17 unionized sector is based on cents per hour for every
18 person that works in our industry that's organized. They
19 pay a certain -- in Sacramento it's a buck 15 an hour, so
20 that covers the entire cost of training.

21 So I'm kind of lost as to why we would want to
22 pay the employer to train his workforce or her workforce to
23 do their work, so that the employer can make a profit. I'm
24 kind of lost on that, but I hope that helps a little bit.

25 MS. CHEW: I think that does.

1 MR. JATKAR: Maybe I'll add to that sort of along
2 the same lines that I think the trick here is actually to
3 get the employers to invest in their workforce. And that's
4 really what's so unique about apprenticeship, and not all
5 apprenticeships, but in the construction trades most are
6 joint labor management apprenticeships where the
7 contractors are paying into this, because they get
8 something out of it. Apprentices are not paid at the same
9 rate as journey level workers and so there's actually -- I
10 don't want to misconstrue things here, but there is a
11 benefit to the employer paying an apprentice, right? That
12 you're not paying a journey level worker, so that's the
13 incentive.

14 And so I think along the same lines as Randy, I
15 think that is what apprenticeship is. And so sort of
16 scratching my head a little bit for anything more there,
17 but if it -- because I didn't get to say it earlier, I
18 would just add that because apprenticeship is a job and not
19 just training, it is earn while you learn, that it is
20 unlike community college.

21 If we don't create the demand for the use or
22 utilization of apprentices through things like adopting the
23 skilled and trained workforce standard. Or just saying you
24 know our school energy efficiency program is public works
25 and should be utilizing apprentices, then we can't feed the

1 apprenticeship system, which is best in class. Because the
2 doors will only open when the opportunity expands.

3 So you know what's really limiting here at the
4 Workforce Board for us is not more money to invest in pre-
5 apprenticeship, but more demand for apprentices that
6 creates the demand for the pre-apprentices. We actually
7 have -- I mean, we won't turn down more funding for our
8 pre-apprenticeship program necessarily. But we've grown
9 quite a bit in the last few years, and what we really need
10 is on the demand side to really have clear signals or real
11 signals that there's a demand for the apprentices.

12 MS. CHEW: Great. A second comment/question
13 comes from Robert Marciel and it's about the workforce,
14 education and training programs in the California investor-
15 owned utilities programs. So he was recommending that, and
16 encouraging that today's participants engage with the IOU
17 workforce, education and training program leads to discuss
18 opportunities for collaboration.

19 Maybe that's already going on, and maybe you can
20 touch on that just to educate the participants in the
21 workshop. Or if you see that there's room for more
22 collaboration.

23 MR. YOUNG: I can, maybe touch on that a little
24 bit, because in one of my many hats that I wear, I'm what
25 they call a PRG Member for the IOUs. So I review their

1 contracts before they're let. And coming from Labor, one
2 of my biggest sticking points is the workforce, education,
3 and training piece. And even though there's mandates that
4 say that you will implore and use it, there are many
5 different training vehicles available.

6 But all training is not created equal, so these
7 bidders that bid on this work they look for the training
8 opportunities that are going to cost them the least amount
9 of money, but benefit than the most.

10 So it's a tough nut. And there always seems to
11 be a little bit of reluctance to really put together a
12 thoughtful fruitful workforce, education, and training
13 program for the different bids that go out. Does that
14 help?

15 MS. CHEW: Thank you.

16 MS. HATTON: Yeah, and I'll add also -- Robert
17 does incredible work. But I think that when you compare
18 like the WE&T budget to say the mainstream energy
19 efficiency program portfolio budget, there's just no
20 comparison right. The WE&T is a drop in the bucket.

21 And I don't know that those two -- I don't know,
22 to the extent to which those two programs or departments or
23 initiatives intersect. So if you're an actual, if you're a
24 CBO or an implementer you kind of either apply and work
25 with WE&T, which is like very specific. Or you try to get

1 into the contracting process with the energy efficiency
2 portfolio. And the two don't really -- at least from my
3 experience -- don't really line up and talk to each other.

4 And also the opportunities are not balanced, so
5 that's what my experience has been on that specifically.

6 MS. CHEW: Thank you both for providing the
7 broader picture. It helped. There's so many facets in
8 this it really helps understand all the pieces, so thank
9 you.

10 I think that's it for question and answer from
11 Zoom.

12 MS. RAITT: Great, Commissioner if it's okay,
13 we'll turn to Dorothy Murimi from the Public Advisor's
14 Office to see if anybody from the public would like to make
15 comments.

16 COMMISSIONER MCALLISTER: Please, thank you very
17 much.

18 Dorothy?

19 MS. MURIMI: Thank you, Commissioner McAllister,
20 and thanks Heather. I'll go over instructions before we
21 begin. So one person per organization may comment and
22 comments are limited to three minutes per speaker. If
23 there are several parties interested in commenting we will
24 reduce the time to one-and-a-half minutes per speaker.

25 If you're using the Zoom online platform, use the

1 raise hand feature. It looks like a high five. Use that
2 to let us know you'd like to make a comment. We'll call on
3 you and open your line to make comments.

4 For those of you on the phone, dial *9 to raise
5 your hand and then *6 to unmute on your end. And we'll
6 unmute on our end.

7 So first I'll call on folks on Zoom. Again,
8 that's if you want to make a comment use the raised hand
9 feature that looks like a high five at the bottom of your
10 screen.

11 And if you're on the phone line dial *9.

12 We'll give that a moment.

13 (No audible response.)

14 MS. MURIMI: I see no public comments. I'll hand
15 the mic back to you, Commission McAllister.

16 COMMISSIONER MCALLISTER: Great. Thank you,
17 Dorothy. I really appreciate that.

18 Well, it seems we are coming to the end of our
19 two days of workshops. Really, I think if you've been
20 listening your head is kind of spinning, because of so much
21 content. And on the one hand it is incredibly exciting,
22 because these are issues that we know are front and center
23 where it's amazing to live in a state where we are being
24 challenged to solve these problems. And encouraged and
25 empowered really to solve these problems, but it's a great

1 responsibility as well.

2 All of those, all of our -- and myself certainly
3 and all of my colleagues across the Energy Commission, PUC,
4 the Air Resources Board, the Treasurer's Office, everyone,
5 the housing agencies I think really feel the weight of
6 history on our shoulders here. These are these are
7 problems in large measure that have been with us for a
8 while and now we really just have to solve them. We have
9 to get through these conversations and that's bringing a
10 lot of creativity to the table.

11 And I think we've heard that today in spades.
12 Yesterday, as well, and really across the board in the IEPR
13 process. So Heather and team, thank you again for doing a
14 great job organizing these workshops. I want to give a big
15 shout out to the Efficiency Division for the
16 decarbonization discussions.

17 I also want to acknowledge the Assessments
18 Division and our Research and Development Division as well,
19 because they bring so much to the table. We're really not
20 only across the agencies, we're building bridges across the
21 divisions within the Energy Commission to address some of
22 these long-term, long-standing problems. So I won't try to
23 sum up everything we've heard, because there's just so much
24 content.

25 But just on process we will be taking comments

1 and there's the slide up there that they are due July 27.
2 The specific docket, the sub-docket there is shown, 21-
3 IEPR-06 for Building Decarbonization.

4 And the IEPR development will be taking a draft,
5 developing a draft and then putting it out for public
6 comment. So there will be multiple opportunities for
7 public comment on this and all the other themes that we're
8 developing this IEPR cycle.

9 So, through the summer and into the fall, we'll
10 really be trying to flesh out the building decarbonization
11 track to be as pragmatic and proactive. And I think
12 positive really sort of forward looking as possible in
13 terms of where we need to go as a state and how that can
14 happen for building decarbonization in support of our
15 energy decarbonization, and reliability, and equity goals.
16 You know, really as we've been saying over and over we have
17 to do all three of those things. It's the energy systems
18 have to be reliable. They have to decarbonize and they
19 have to develop in a way that's equitable and inclusive.
20 So we just can't leave any of those behind.

21 So with that I think I will pass the microphone
22 to I believe my last remaining colleague on the dais,
23 Commissioner -- oh no, Derek, there you are too. Sorry, I
24 keep -- I have multiple screens here, so I miss people. So
25 I'll pass to Commissioner Shiroma and then to Executive

1 Director Chernow. And we will wrap up after that.

2 Commissioner Shiroma?

3 COMMISSIONER SHIROMA: Thank you. Thank you,
4 Commissioner McAllister, for your leadership again on this
5 effort. And simply put, today's discussion was very
6 insightful and thought provoking. We have a lot to do
7 ahead of us. And I look forward to working with all.
8 Thank you very much to all the panelists and to the staff
9 who supported this effort and to the folks who have tuned
10 in on this.

11 Thank you, back to you, Commissioner.

12 COMMISSIONER MCALLISTER: And thank you for you
13 and your team as well. And the PUC is a true partner in
14 developing these themes. And there's so much expertise in
15 your shop as well, and the complementary perspectives make
16 all the difference. So really, thank you as well.

17 EXECUTIVE DIRECTOR CHERNOW: And I'll just --

18 COMMISSIONER MCALLISTER: Derek, did you want to
19 wrap this up?

20 EXECUTIVE DIRECTOR CHERNOW: Yeah, thank you.
21 And I'll just echo and thank you Commissioner McAllister.
22 Thank you to the Energy Commission staff.

23 I think what we've heard over the last couple
24 days is you know, the need for an all-the-above approach.
25 And we heard a great amount of wonderful information on how

1 to get there from a very wide array of speakers, each
2 presenting a unique way of approaching decarbonization and
3 energy efficiency.

4 And part of that all-the-above approach is
5 financing whether it's grants, incentives or in CAEATFA's
6 experience, leveraging private sector dollars to make these
7 things happen.

8 And you know, in accordance with that all-the-
9 above approach I think -- and I hope folks are walking away
10 with this -- that they see state government working
11 together: the PUC, the Energy Commission, the Treasurer's
12 Office, Workforce Development and working with our federal
13 partners as well to get us to those greenhouse reduction
14 goals.

15 And it's an exciting time for us. It's
16 challenging, but I'm walking away very positive over the
17 last couple days that we've got a lot of good people in the
18 state making it happen. So thank you very much.

19 COMMISSIONER MCALLISTER: Thank you for your
20 leadership. Really, as you said, really a keystone piece
21 of making projects happen in the actual world we live in,
22 that's (indiscernible).

23 So I think the talk about metrics is really
24 interesting, because they do help us link up the world we
25 live in. And the world that we want to go, that we want to

1 try to create that helps us know if we're getting there.
2 So there is a lot of food for thought around how we can
3 track our progress as well over the couple of days. So,
4 and good luck on your initiatives as well, Derek, really
5 good stuff.

6 So with that, I think I will have the final mic
7 drop over to Heather to help us wrap it up and tell us
8 what's next, just in case I've missed something and then we
9 can adjourn. So, Heather?

10 MS. RAITT: Oh, well you're doing great as usual,
11 Commissioner McAllister. I don't have anything to add, but
12 comments are due July 27th. Thanks.

13 COMMISSIONER MCALLISTER: Okay, well great.

14 Well, thanks everyone for sticking it out to the
15 bitter end here. And with that we'll call it a day and
16 look forward to everyone's comments. Take care.

17 (The workshop was adjourned at 1:01 p.m.)
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CERTIFICATE OF REPORTER

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 1st day of October, 2021.



MARTHA L. NELSON, CERT**367

CERTIFICATE OF TRANSCRIBER

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.



October 1, 2021

MARTHA L. NELSON, CERT**367