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BÜSINESS MEETING
BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of:  } 21-IEPR-03
) 2021 INTEGRATED ENERGY POLICY )
) REPORT UPDATE (2021 IEPR UPDATE)

CALIFORNIA ENERGY COMMISSION
REMOTE ACCESS WORKSHOP: California’s Evolving Economic and Demographic Landscape

TUESDAY, FEBRUARY 2, 2021
9:30 A.M. Session 1 - California Economy Now and in the Future

Reported by:
Peter Petty
APPEARANCES

Commissioners

J. Andrew McAllister, 2021 IEPR Lead Commissioner
Patty Monahan, Commissioner
Karen Douglas, Commissioner

Staff Present

Heather Raitt, Assistant Executive Director, Policy Development
Nancy Tran
Le-Huy Nguyen
Mark Palmere
Rosemary Avalos, Public Advisor’s Office

Panelists

Irena Asmundson, California Department of Finance
Stephanie Guichard, San Diego Association of Governments
Julien Lafortune, Public Policy Institute of California
Jerry Nicklesburg, UCLA Anderson Forecast
Laura Ratz, Moody’s Analytics

Public Comment

None
Proceedings

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MS. RAITT: Good morning, everybody. Welcome to today’s IEPR Commissioner Workshop on California’s Evolving Economic and Demographic Landscape.

I’m Heather Raitt, the program manager for the Integrated Energy Policy Report which we refer to as the IEPR.

Today’s workshop is being held remotely consistent with Executive Orders N25-20 and N29-20 and the recommendations from the California Department of Public Health to encourage social distancing to slow the spread of COVID-19.

To follow along today, the workshop schedule, copy of questions that may be asked during each panel and biographies of the panelists have been docketed and saved on the Energy Commission’s website.

For instructions on how to access those can be found in this meeting notice.

All IEPR workshops are recorded, and both a recording and a written transcript will be linked to the Energy Commission’s website within a few weeks.

Attendees have the opportunity to participate today in a number of ways. You can ask questions or upload questions submitted by others with the Zoom Q and A.
feature. We’ll try to reserve a few minutes at the end of the panel to read out a couple of questions for our panelists.

You may also make comments during the public comment period at the end of the morning session, and we also welcome submitting written comments, and instructions for doing so are in the meeting notice. Written comments are due on February 23rd.

I’ll just mention that we do have one change to our schedule today. This morning our moderator, Jeffrey Michaels, is unable to join us, and so we have the Energy Commission’s Nancy Tran and Le-Huy will slip in as our moderator for this morning.

And with that, I’m pleased to introduce Commissioner Andrew McAllister. He’s the lead commissioner for the 2021 Integrated Energy Policy Report. Go ahead.

Thank you.

COMMISSIONER McALLISTER: Thank you, Heather.

I’m really excited for today. I’ve been looking forward to it and kicking off another IEPR cycle. They overlap, so we’re wrapping under the 2020 IEPR under Commissioner Monahan’s capable leadership, and now we’re kicking off in earnest the 2021 IEPR which will be a full forecast, and so the econ demo workshops of today is kind of kicking off the level set. Much of that analysis that will go forward that
we’ll be doing going forward in the Assessment’s Division
and really across the commission.

So I’m really looking forward to the panels. We
have some incredibly high-quality folks here and it’s
really -- I’ll just thank them ahead of time right at the
outset for providing their time and expertise with us here
today.

I see that my fellow Commissioners Monahan and
Douglas are here and I will invite them to give some
opening comments here in a bit.

But I just wanted to highlight briefly that, you
know, these times make forecasting and prediction even more
difficult than usual. You know, the energy consumption
patterns and the economy broadly, demographic trends,
regional trends, all of those things are complicated, all
those aspects of the forecast are complicated by just the
bizarre times that we’re in. Sometimes it feels like we’re
living in the Old Testament with plagues and demagogues,
and fires and pestilence. But, you know, I think that’s a
challenge for us and we have a lot of smart people in a
large economy like ours that could help us grapple with
some of these trends and use data to chart the path
forward.

And I think one of our big challenges will be to
try to get the air bars around our forecast as narrow as
they can be given all the uncertainty that’s heightened, even compared with previous forecasts. And, so, I think we’ve got a lot of work ahead of us. It’s really exciting, actually.

There are many reasons to be optimistic, I think, as we emerge from the COVID crisis and we figure out the path forward to restart our economy in traditional directions, but also in new and innovative directions as we decarbonize our economy, you know, within our energy systems.

So, I’m really happy to get this conversation going today and would pass the baton to Commissioner Douglas.

COMMISSIONER DOUGLAS: Thank you, Commissioner McAllister. I really have nothing to add. I’m looking forward to this workshop and just doing my best to dial in as this new IEPR cycle kicks off, so, thank you.

COMMISSIONER McALLISTER: Great. Commissioner Monahan, would you like to make any comments to open us up, too.

COMMISSIONER MONAHAN: First, I want to congratulate you on likening the current situations to the Old Testament. That was very appropriate.

I, too, am really interested to hear what the latest thinking is. As you said, these are really
uncertain times, and we’re trying to do the best analysis we can, given the information that we have. So, I’m really looking forward to diving in and learning more in today’s workshop.

COMMISSIONER McALLISTER: Great. So, I think I did not see Chair Hochschild on, but, of course, if he joins we’ll welcome his comments as well.

And, yeah, with that, I think I’ll pass it back to Heather, and we’ll get started with the first panel.

MS. RAITT: Great. Thank you, Commissioner. Our first panel is on California’s Economy Now and in the Future, and as I mentioned, we have a change in schedule, and Jeffrey Michaels is unable to join, but we are fortunate to have Nancy Tran and Le-Huy from the Energy Commission to moderate this panel.

So, go ahead, Nancy. Thank you.

MS. TRAN: Thank you, Commissioners. Thank you, Heather. Good morning, everyone. My name is Nancy Tran. Comoderating this panel with me will be Le-Huy Nguyen. Both of us work here at the California Energy Commission in the Energy Assessments Division.

As an economic and demographic forecaster and our end use serve lead, Le Huy and I will be asking this panel questions related to California’s current economy and future economy.
And we are fortunate to have a distinguished panel of experts with us today, and on this panel we have Irena Asmundson from California Department of Finance, Stephanie Guichard with the San Diego Association of Government, Julien Lafortune with the Public Policy of California -- Public Policy Institute of California, Jerry Nickelsburg with the UCLA Anderson Forecast, and Laura Ratz with Moody’s Analytics.

If you’d like more information about our panelists, please refer to our CEC website for their biographies under the 2021 IEPR.

Because some folks tuning in will be in listening mode only, it has been requested that we have the panelists restate their name prior to responses to the question.

And I’d also like to invite the commissioners to ask questions during this discussion.

So, let’s start the topic we all have lurking on our minds, the pandemic-induced recession that has been caused by COVID-19.

So, my first question is which region within California experienced the greatest and the least COVID-19 impact in 2021 -- or in 2020 and 2021, and when do you anticipate a recovery?

So, let’s have Stephanie start us off because she’s in San Diego, and then we’ll move on to Laura Ratz as
a follow up.

MS. GUICHARD: Hi. So, on -- I’m going to cover mostly when we think the economy is going to recover, and I think, you know, the war story is kind of the same whether you’re talking about San Diego or the U.S. as a whole.

What, you know, we saw like a major collapse in the economy in the spring and a strong recovery during the second quarter, but since then, recovery has really stalled. I mean we haven’t seen much improvement whether you look at data at the national level, we see in the last quarter of the year GDP growth was just focused on and it left us about 2.5 percent below where we were before COVID, so we haven’t reached back the level we had before COVID.

And when we look at the San Diego region, we have tried as SANDAG to look at, you know, many different dimensions using I frequency data, so we look at, you know, mobility data, food traffic data, credit card spending. We also look at the traffic on our freeways, which is kind of an indicator of the underlying activity. And what we’ve noticed is it seems like since the summer we are kind of on the flat line. I mean there’s ups and down, but it’s very moderate. And this is not surprising when you look at what’s happening on the pandemic front.

So, just to give you an example, I put together a dashboard in the summer where I could track all these high
frequency indicators to see when we would go back to pre-
COVID level. And so everything started in the dark red in
the summer, and then I added this called scale which was
going towards orange when you are like around 50 percent or
where you were before COVID and slight kicking the yellows
when you were getting closer to pre-COVID levels, and then
once you reach preCOVID level you are kind of in the green.

And I was thinking when I put this together more
than six months ago, well, I’m going to present this on a
regular basis and we can all see the progress. And you
know what, I’ve been presenting this dashboard several
times and it seems that since the fall we kind of -- we are
stuck in the orange on most of the dimensions.

And this is ready, I mean, it’s not surprising
this is linked to what’s happening on the pandemic front,
and the bottom line is that unless we have a vaccine that
is effective, including with the new variance, and until
this vaccine is rolled out to a larger share of the
population, we are not going to see the economy recovery we
are all waiting for.

But that’s kind of the, you know, the pandemic
recession story, so we don’t think this is going to happen
before the summer of 2021. So, mostly likely we’ll reach
this level where we can go back to normal. I mean we all
have fingers crossed that the vaccines are going to work,
against the new variance, and there won’t be any shortages in the supply of vaccine, so in that scenario it means that you can start having a recovery because the pandemic is behind us in the second half of this year.

Then the other question is how fast do you go back to kind of, you know, normal situation. And all of you understand that this is going to take time for several reasons.

One of them, it’s going to take time for people, you know, to go back, to feel confident that this pandemic is behind us. We saw it in the past when there were major events. It takes time for people to go back to traveling, these kind of things.

The other issue I hear a lot about sense of demand, but let’s not forget the demand that is the most effective is services, and I mean, even if things go back to normal and you can’t -- I mean there is a limit of how often you can go to restaurants, every day, or every week, or even let’s talk about hairdresser. How many times can you go to the hairdresser in a given week? I mean you can’t. It’s just ridiculous. So, this is going to take time.

And the other thing is, you know, this crisis has led to many disruptions. We’re going to talk later in the panel about how, you know, the economy is going to be
different going forward, and this means that there are 
several structural changes in the economy to which 
businesses will have to adapt.

We know, also, that many small businesses have 
closed, so some jobs are lost. They are not going to come 
back by magic when this pandemic is over, but it’s going to 
take some time, and this includes -- this will require, in 
particular, to retrain people. I mean we believe that some 
of these jobs are gone, and they’re gone for good. But 
there are new opportunities that have emerged with this 
crisis.

So, to get there you will need some training of 
the labor force. From my previous experience working in 
different countries, I mean, this is not the strength of 
the United States, the training of the labor force, so this 
is going to be a major challenge to make sure that the 
people who lost their job in this pandemic are going to be 
able to sizeable opportunities when we go back to normal 
which is going to take a few years for this recovery to 
fully happen.

And that’s it for now.

MS. TRAN: Laura, would you like to tackle that 
question?

MS. RATZ: Yeah, I mean I would echo that 
forecast, that, you know, it’s going to take several years.
You know, we don’t expect the U.S. economy to, you know, fully recoup all the lost jobs until, at best, mid-2023, and I think California will be somewhat later, you know, up to six months to a year later. And this is in a large part because the pandemic has hit California so hard, and we’ve already seen that employment is not recovering as quickly, you know, just because of the persistent infections, the necessary closures to contain that.

And then you combine that with, you know, California does have sort of structural hurdles to overcome that won’t help the recovery either. You know, it’s just there’s -- we’ve been seeing population declines for quite some time, and I think that, if anything, the pandemic will have hastened that trend.

MS. TRAN: Jerry, would you like to chime in?

MR. NICKELSBURG: Sure. So, I have a little bit of a different slant on this. I think when we compare California’s unemployment rate and job loss to other states, including the U.S. as a whole, and think about California’s public health interventions, what are called nonpharmaceutical interventions, that’s closures, stay-at-home orders and so on, California has been more stringent than other states. So, you’d expect us to have higher unemployment and slower addition of jobs. But the evidence
that we have from the 1918, 1919 pandemic is that the then, and, of course, this is a different pathogen, a different economy, but then the cities that had more stringent public health interventions had better health outcomes and stronger economies after the pandemic was over with.

So, kind of drilling down a bit on this, I think part of the original question was what parts of California have been hit the hardest, the sectors, and I’m not telling anyone anything that they don’t know, that have been hit the hardest have been the sectors that involve a lot of human contact, and so that is principally leisure and hospitality.

But if you take leisure and hospitality, and personal services in the sector called other services, and retail and education because the schools are closed, you get about -- you get over 75 percent of all unemployment in California.

And, so, you know, where is the pain? It’s in two places. It’s in places where you have tourism, so this is going to be north Orange County, Los Angeles, San Francisco, wine country, Coachella Valley, and places where students aren’t going to school, particularly university students, and where tech workers can work remotely and are not going into the city, and so that is the Bay Area and the areas around universities.
So, that’s where the pain is, and when do we come back and how fast? That is the -- the answer is the same as what the others have said, when is the pandemic going to be over with? And we are hopeful for this summer, but we don’t know.

MS. TRAN: All right. Irena, Julien, would you like to give your take?

MS. ASMUNDSON: Sure. So, you know, I actually want to take a step back first and say we as economists tend to think about the recession happened and then when are we going to get back to the previous trajectory? When are we going to get back to the previous level of GDP? When are we going to get back to the previous level of jobs?

And, you know, one of the things I think we all observed during the pandemic was that there was an enormous amount of inequality in our economy, and, you know, there was an enormous amount of unfairness that was really brought to the fore by the Black Lives Matter Movement that we should probably pay attention to.

And, so, when we talk about the recovery I don’t really want to go back to what we had before, and I really don’t want to go back to the trajectory that we were on because we knew that it was going to be pretty painful to get to a net zero carbon economy that we know that we need
to get to in the next couple of decades.

And, so, when we talk about recovery are we talking about GDP levels, which are probably going to recover in the next couple of years? Are we talking about jobs? Maybe we were going to get to them in a couple of years further. But when are we going to get back to the point where people actually have the opportunity to save, and have a living wage, and actually do well? And we hadn’t been there for kind of a while, maybe ever if you look back at history.

And, so, that’s the kind of recovery that is a huge, huge destruction of the pandemic, it’s kind of an opportunity for.

I think the commissioner put it very well when he said one of the big challenges right now of doing forecasts is that people’s behavior is changing enormously. And, you know, we know that we’re going to be wrong because we’re going to get people’s behavioral changes wrong. And we know some of this, it’s captured in migration numbers, it’s captured in which sectors are doing well and which sectors aren’t doing well, captured in the geography of where people are choosing to live.

But I think that this is kind of a rare opportunity to set out a new agenda for saying, yeah, we know that energy prices are going to have to do a certain
-- you know, they’re going to have to go up if we’re going
to get to net zero carbon. We know we’re going to have to
change our behavior and, so, what does that look like?
So, I don’t think that I disagree with my
panelists, my fellow panelists, in the sense that it’s
going to take a couple of years before we get back to our
traditional indicators, but I did want to throw that in
there.

Julien.

MR. LAFORTUNE: Thanks, Irena. This is Julien
Lafortune with PPIC.

I agree with all the previous panelists, and echo
kind of Irena’s point that when we’re thinking about
recovery that can have different definitions.

So, what do we mean by recovery? Are we getting
to, you know, previous levels of GDP? Are we getting, you
know, employment back to where it was prerecession,
prepandemic, or are we kind of thinking about structural
changes and new directions almost as an opportunity where
we’ll be going forward, and so I think, you know, those
timelines are all very different and I think a lot of that
depends on the policy choices we make as well over these
coming years.

But just kind of at a high level I do think, you
know, we’ll probably see, you know, just some of the broad
GDP-like indicators recovery, you know, in the next year or two, but the labor market might lag for a bit longer than that.

And I think back to kind of the original or one of the kind of first parts to the questions about the regions that will lead and lag and kind of what has experienced the greatest impact. So, I think that one thing that stood out to me is that this has really been a service sector recession so far as opposed to one kind of based in goods. And as a result we’ve seen a lot of these greatest impacts in these large cities in the urban core, San Francisco, LA. And a lot of that is driven in part by, you know, just by differences across regions in the industry mix, right, the industries Jerry was talking about, tourism, service sector, face-to-face retail, hospitality and leisure. These are all things that have been hit particularly hard.

But work-from-home culture and, you know, the dynamics of how that plays out over the future will also affect -- you know, has been a big factor kind of driving some of these losses and the differences across regions. And this led to differences that kind of go beyond just what we see at the industry level.

So, if we kind of try to net out just the industry mix and the job mix and look at places that are
doing a bit worse or better than expected, these big kind of coastal urban cores stand out as doing worse than expected, even given their industry mix. And I think a lot of that is driven by the fact that, you know, there are a lot of businesses that rely on these clusters of workers, of people in one place at one time for economic activity, and without, you know, kind of full vaccination or at least the pandemic being over, it’s hard to see that coming back. And, so, I think recovery is going to lag in a lot of these regions, especially on the coast.

And in some ways that’s going to be kind of a reversal of previous recessions and previous trends where kind of the impacts have been larger and more persistent and slower to recover in some of the more inland regions of the state.

MS. TRAN: All right. Thank you, guys. So, my next question here is the Federal Reserve Chair and others have said that we will be coming back to a new type of economy post-pandemic, and I think you all agree with that assessment.

What does that post-pandemic economy look like? You guys gave us a little idea of what you guys think it would look like and Stephanie most certainly touched on that. So, what do you guys think that post-pandemic economy is going to look like in terms of not just jobs,
but just life, teleworking, those sorts of things?

    Anyone want to jump in at this?

    MS. ASMUNDSON: I think -- oh, sorry, this is
Irena Asmundson from Finance.

    I think that people are probably -- this has been
a huge demonstration project of can we work effectively
from home and who can effectively work from home. And, so,
even if people decide to go back into the office one or two
days a week, I think that permanently there is going to be
less demand for commuting, which is a great -- like I love
working from home. But it also means that probably for
energy purposes the load is just going to be very different
in many places.

    I think that probably makes it a little bit
easier to do the load sharing when we’re trying to plan for
electricity demand, and especially if we electrify
everything, that that will help because I think that it
will smooth things out a little bit. But that is, in
particular, something that I think is going to be
permanent.

    MR. NICKELSBURG: So, let me add a little bit on
that. This is Jerry Nickelsburg from UCLA.

    In two regards. One is I agree with Irena that
we’re going to have more flexibility, and we’re going to
have more of our work time being done from home, so that
shifts the energy demand towards what we’ve seen the energy demand shift in this pandemic thus far, to residential neighborhoods from offices.

So when we do go back to the office -- and I want to comment on that momentarily -- when we do go back to the office, the offices are going to be open, and so I think the real question that you all have to struggle with is are they going to have their lights on five days a week, even though only part of the workforce is coming in? You know, is the energy usage going to be just about what it was before in office-intensive areas, but higher in residential areas? So, that’s -- I don’t have an answer to that, but I think it’s something for you all to consider.

And then --

COMMISSIONER McALLISTER: Can I jump in actually? Jerry, can I jump in on that point, actually? This is Commissioner McAllister.

I guess I’ve been sort of formulating a question that I want to ask sometime this morning, and you’ve just sort of provided a little trigger for it, so I ask it.

You know, so in a long-term perspective at the point of like, okay, well, you just made, are the lights on all the time on the office space, which is a great question. But I guess there’s a longer-term structural question of are there the same numbers of square footage,
you know. Is the same square footage actually being 
occupied? So, if the lights are on all the time and you 
have, you know, two out of five employees on any given day 
in the office, then you can expect shrinkage in the 
commercial and office space in those urban cores. So I 
guess I’m kind of wanting you all to think about the long-
term implications of that structural shift, if we think 
it’s going to -- you know, do you think it’s going to 
happen and, you know, what does that mean for sort of the 
commercial demand as we begin to look at it? You know, is 
that a -- is the denominator going down over time as people 
become more diffuse in their patterns?

MR. NICKELSBURG: So, I’ve given this a little 
bit of thought and I think, you know, the short answer is 
we don’t know what the office is going to look like post-
pandemic. But in the latter part of the last decade we saw 
square footage per employee in the office shrink.

And one of the changes that I think we can 
expect, and firms that want to be competitive are going to 
do this, is a reconfiguring of the office for more square 
footage per employee, because people don’t want to be on 
top of each other, and that would mean fewer people but 
more square footage per person, and is that the same size 
of an office, or is that less office space? So, that’s the 
first part.
The second part is when we started working from home there was this narrative that, oh, that’s going to change work completely, that nobody is going to go back to the office, and that is proving to be sort of patently false. And the reason is it’s -- you know, there are multiple reasons, but being in the office allows you to get nonverbal signals. It allows a different kind of communication. It allows creativity and teamwork, and also you get to be in front of the boss.

So, you know, if you are working from home and home is in Grand Junction, Colorado are you going to get that next promotion? Are you going to get the raise? Are you going to be able to network so that you can move along in your career? And the answer is clearly no. So, people are going to want to be back in the office, and also, so far we haven’t seen anyone’s cat jump on them or kids run in, but, you know, there are distractions at home.

So, we will be going back to the office, but as Irena said, maybe not every day, and kind of that open question is does that mean more energy usage per person or less? And I think I would think more.

COMMISSIONER McALLISTER: I think the team is beginning to get a handle on that based on data, so it will be interesting to see how the forecast, you know, as we get individual level, you know, and we start to aggregate some
of that demand data.

But I guess I want to hear what other people have
to say about that because I guess, you know, I’ve been
assuming, and with no real information other than
anecdotal, but that hoteling might become more popular and
that overall square footage might shrink as people share
space. It sounds like, Jerry, you don’t think that’s going
to happen, but I guess it seems like an important point to
tease out a little bit to the extent we can.

MR. NICKELSBURG: So, before we turn to other
people, I think it could happen, but firms that are going
to do it are going to have to ensure their employees that
the person before them was either healthy or that space
that they’re occupying now has been appropriately cleaned.
So, that increases costs, and I’m not sure if that happens
or not.

MS. RATZ: This is Laura Ratz. One thing that I
would like to add to Jerry’s point about how the transition
to working from home may not be quite so complete is that I
really do feel that memories will prove short. You know,
once the pandemic really is behind us, people will want to
return to some semblance of normalcy and we’ve seen that
already. Not that going out to eat and going in to the
office are all the same thing, but we’ve already seen a
great reluctance in certain parts of the country for people
to, you know, to stay at home and to adhere to social distancing guidelines.

And I think that, you know, once the pandemic really is in the rearview mirror people are going to want to go back to the office just for the sake of normalcy, and I think that will be a really hard -- you know, in -- assuming this is all behind us in 2025, I don’t think people are going to work from home out of concerns that COVID -- assuming the pandemic is under control, of course.

MS. ASMUNDSON: This is Irena Asmundson from Finance. One of the interesting things is, you know, Jerry and Laura have talked about certain bounce back to previous behavior, whereas I think what we’re going to start observing is that there’s going to be new behavior evolving, and people are going to figure out new ways of sort of interacting.

Actually, I think that one of the hopeful things about people working from home is that if done right you can actually focus much more on sort of those like actual quality indicators rather than nonverbal signals. So, if you have to be very measured about how productive people are being when they’re working from home, that’s actually an opportunity to remove some bias and to make the playing field a little bit more level because you are focusing on like actual productivity indicators. This doesn’t always
work, but that is potentially a silver lining.

So, the longer this drags on I think the less of a bounce back there’s going to be because people will have evolved new ways. Like they’re going to carve new grooves in their brain is kind of how I think about it.

Stephanie, I think you were going to say something.

MS. GUICHARD: Yeah. I wanted to add something. So, basically, with this working from home experiment I think we are moved forward like 10, 15 years in a few months.

And one thing that we shouldn’t forget, I mean for my generation working from home was -- I mean it worked very well, but it was not so natural to our generation. But think about the people who are going to be in the labor market like 10 years from now. Now that I have teenagers at home, I mean these are the people who are having such difficulty that parties with their friends and just using their phone. They were not seeing each other all the time but they could have a party just using their phone, and our generation was not able to do that. We’ve learned to do that with COVID, but I think we shouldn’t underestimate the ability to make working from home work because they have been used to this way of communicating with other people since almost they were born. I think they can trust each
other better in the working from home environment that we
do. I have on board two interns in the recent months.
They haven’t stepped foot in the office, and they adapted
very well and very quickly. I’m not sure I would have been
able to adapt to a new job in this kind of environment the
way they have adapted.

So, we shouldn’t underestimate, you know, the
ability of the new generation to be able to adapt and make
this new environment work. This is -- I think what would
have happened in 10 years, it may start happening now.

The other thing I wanted to stress, according to
what Irena was mentioning earlier is the inequalities that
were existing before this crisis and that we have already
seen even clearer than we were seeing them before. And, I
mean, we are talking about, you know, working from home.
There is also, you know, distance learning, virtual medical
healthcare, online shopping. All these things have really
been exacerbated by COVID, and what we see is already
clearly also at the same time the digital device.

So, for instance, in San Diego I think 23 percent
of the low-income households don’t have a broadband
subscription which means that, no, they can’t work from
home. They can’t study from home. They can’t do online
shopping the way we do it, and they can’t do virtual
healthcare. I think in some of the local districts 20 to
40 percent of the students don’t have home internet access. So, this is really what is going to make this thing work or not is whether it can include everyone in the population or if it’s going to remain a very inequitable system where part of the population has access to all these benefits from the digitalization of the economy that has occurred in 10 months instead of 10 years, or whether, you know, we’re going to remain divided on that front.

And just something I wanted to mention. I just have some kind of hope about the future of our economy. You know, we saw that business have better adapted very quickly to COVID and they have, you know, many businesses which, you know, didn’t have a website before, didn’t have online sales before, they got it done during COVID. And one of the issue we were observing as economists is that there were very high productivity gains in the top firms in the U.S., but it was not being -- there was no diffusion to the majority of companies, and maybe and that’s the hope, and we need to do more research on that, but maybe one of the positive aspects of COVID is that it would have forced this diffusion of technologies to companies which were, you know, they were doing okay so there was no need to adopt these new technologies.

Maybe, and that’s my hope for the future is that thanks to COVID we’ll see more productivity gains in the
 small business sector. And at the end, I mean if we can
address the inequality issues and if we can get higher
productivity in the small business sector, maybe we’d get
out of this better than we were before.

COMMISSIONER MONAHAN: I wanted to follow up on
that issue that Stephanie raises about equity and what
changes we can expect as more people telework in terms of
the equity implications. That’s one question.

And the other question I had is whether you are
aware of -- if anybody on this panel is aware of any
upcoming research that really pieces out this question of
what percentage of the population is going to continue to
telework.

I know anecdotally, you know, we’ve done surveys
internally. Our staff prefers work from home. They say
they’re more productive because we have the online tools to
be able to do, you know, work simultaneously on a document,
you know keep confidential -- information confidential but
still be able to work from home. There’s been such an
evolution in terms of the technology.

We’ve also seen as these IEPR workshops begin and
we ask our participants do you like it better to do it
online, or did you like it better when we did it in person,
and the answer is they like it better. So, there’s some
ways that I think people are like, oh wait, maybe this is
better than what we had before through technology.

Definitely that technology was an enabler of that.

Any upcoming study that we should be aware of?

I’ve seen so few. Actually really trying to quantify both
the demand in terms of travel demands, but also electricity
demand and percentage of population that is going to remain
working from home.

MS. ASMUNDSON: So, this isn’t a forecast, but we
have been tracking the Household Pulse Survey that the
census was doing. And I wouldn’t be surprised if the
census chooses to continue some form of that just because
the behavioral changes have been so big.

COMMISSIONER MONAHAN: What would be the timing
-- you know, what would be the timing on that? Like when
could we expect to see some data?

MS. ASMUNDSON: So, the Household Pulse Survey is
being done by the census every two weeks, and I think
they’ve just released like the 22nd iteration of this that
covers the first part of January. I could send you the
link or put it in the chat function if you want.

COMMISSIONER MONAHAN: If you could put it in the
chat for everybody, and that way the folks that are
listening in could also get access.

MR. NICKELSBURG: So, before we think that the
platform that we’re on right now and those like it is our
permanent future, I think we ought to, you know, kind of step back and so, you know, what about studies.

So, there was a really interesting study done maybe five years ago by a couple of professors at Rutgers University. So, 30 years prior architects, urban architects took videos of various spaces in cities around the country and analyzed them as a way of trying to understand how people use public spaces. And these professors from Rutgers decided to revisit that, and the surprising thing that they found, and they were expecting, you know, the millennials, for example, to be on their phones, and this is kind of to Stephanie’s point, and, you know, the joke about millennials is they’re sitting at the dinner table communicating to each other on text rather than talking across the table.

So, what they found was exactly the opposite. Boomers were on their phone and millennials really were starved for that human contact. And I sometimes think that science fiction writers are better forecasters than economists, and Isaac Azimov has in his “I Robot” series something that, you know, how prescient everyone is using something like what we’re using today, and they so abhor the lack of human contact that they end up engaging in really dangerous behavior just to get together with one another.
So, I think we’re too early in this to say this is the future. Are we going to use this technology to improve our productivity and to get more flexibility in our work lives? Sure. But work from home, you know, I just think that we are too much social animals to have that be a permanent thing.

And the second aspect of that is that, you know, creativity tends to happen when you get together, and, you know, you see things in your peripheral vision, and they give you sparks. And that doesn’t happen as much at home even though we have really great tools. But to Irena’s point, work from home can perhaps allow us to move to a more equitable workplace, and that would be certainly a positive outcome.

With respect to energy usage, I think Stephanie brought up something really important, and that is that telemedicine may mean less energy usage in medical complexes, right, because you have smaller -- potentially smaller footprint there. The decline of brick-and-mortar retail, less energy usage there. So, I’m sure you’re considering those things, but those are important changes on what will the economy look like post-COVID.

MR. LAFORTUNE: One thing I wanted to add to that, and I guess I agree with Jerry that, you know, I think some of these changes won’t be immediate and there’s
a lot of benefits from going in to work in person that, you
know, just aren’t realized, at least aren’t realized yet in
an online setting. But I don’t think we’ll start to see at
least an acceleration of these trends that were already
happening in more teleworking.

But one thing I wanted to touch on this is kind
of back to the point about equity. It’s just that work
from home is actually something that’s more for the highly
educated and the more fortunate among us.

So, I think I don’t know if there’s, you know,
more recent numbers on this, and one national number I’ve
seen, I think it’s about 40 percent of college graduates
right now are working from home, but it’s only about six
percent of those with a high school degree or less. And,
so, given that there’s still a large portion of the economy
in the workforce that are, you know, not kind of this
highly educated bubble that we often are surrounded in, I
think there’s just a -- you know, we may not see as much of
a paradigm shift in the kind of next iteration of this
post-pandemic economy just for the reasons that a lot of
significant portion of economic activity is still going on
in person, even right now, and will probably continue to do
so in the future. And that has big equity implications as
well.

So, as much as, you know, working from home can
enable a more equitable workplace, I think that’s not something that’s available for all types of work.

COMMISSIONER McALLISTER: I wanted to put a question in the chat actually about this. I guess, so, you know, I guess I’m interested in whether we’re seeing the structural shift of like where home actually is, right. And you just said higher educated people have more access to work at home with these remote tools, you know, in a professional setting. But, you know, how many people really are choosing to change, move out of San Francisco, and move into the, you know, foothills or someplace, you know? Where are quality of life considerations kind of overlaying all these other issues we’re talking about? And, so, you know, rather than -- so how does that affect our kind of geography?

You know, I’m thinking about energy usage patterns in a particular place, like a circuit, or a region or locale, when you’ve got this sort of post-modern mixing going on where it’s no longer rural urban but it’s sort of based on class. So, I’m wondering if anybody has any sense of how big the kind of COVID related migration of home is likely to be.

MS. ASMUNDSON: Well, since I also have to deal with the demographic stuff, you know, it’s something that we’re really curious about. And I will note a couple of
rules of thumb for California and demographics in our population growth. Our last set of estimates we did show a very, very close to zero growth.

We disagree with the Census Bureau, by the way. They think that we’re shrinking; we think that we’re still growing a very small amount.

And normally what happens is births outpaced deaths in California, so, you know, over 400,000 births, usually under 300,000 deaths, and then you tend to have positive net migration, and because of international immigration, and then California tends to lose people to other states.

So we will only have one of those flows for the migration trend in 2020 basically. And it’s probably going to take a little while to revert back to that international migration flow. We do think that it’s going to start happening eventually. The question is kind of when.

And then in terms of the date about where people are ending up, this is kind of the wild card because I don’t think people know where they’re going to end up yet. There was a lot of people who sort of moved and they thought it might be temporary, and now it’s kind of turning into permanent. And then there were a lot of administrative things so that people didn’t have to go into the DMV and change their driver’s license. And, so, there
were all of these things that are messing with our data
about where do you officially live. That post office
change of address form there’s also like maybe they’re
adequate, maybe they’re not. The DMV data, you know,
people’s tax filings, we’re not going to get data on that
for a little bit.

So, that’s a long way of saying I think we’re
going to be figuring this out for another couple of years
because we don’t know whether someone is officially here or
not because they don’t know.

MR. NICKELSBURG: Let me add one thing to that on
the data. Another way in which the data is conflated with
COVID moves is that the leading edge of the millennials is
at the point where they have to decide whether or not
they’re going to have families. And for those who decided
that they want families, they’re following what generations
before them have done, which is move to larger living
quarters, move to the suburbs.

And the reason for staying in the city if you
were planning on doing this in 2022 or 2023, was because,
you know, all of the cultural amenities in the city. But
that’s all shut down. The interest rates are close to
zero. So why not do it now and go and get that home in the
suburbs since we were going to do it anyway in months or a
just a couple of years.
So that kind of migration of millennials to the suburbs conflicts the data. You know, are they moving because of COVID or because they’re just at the point in their lives where they’re ready to start families?

To the extent that we see, and I’ve been looking at the San Francisco Bay Area pretty carefully recently, to the extent that we see rents decrease, that provides an incentive for the next generation of the Zs who really want to be where the action is in tact to move in, because it’s now less expensive.

So, Irena hit it on the nail. The data is really inflated with lots of different things happening right now, and we have no way of separating those out.

MR. LAFORTUNE: Just to piggyback on Jerry’s point, and this is, again, something, of course, that’s conflated in the data so there aren’t really good indicators of the extent to which this is happening. But if we kind of go back to the previous conversation we’re having about working from home part time, going in part time, you know, you don’t have to be in the office every day, and so I think a lot of workers may choose to live a little bit further, so they may not relocate to other states. They may not locate to other metros, but they may, you know, kind of might shift their tradeoff between living very close to their job, to these cultural amenities that
have been kind of put on pause and moving further out in
the suburbs further, you know, to the fringe of that, you
know, away from the urban core. That’s something that I
haven’t seen data on, but if I had to guess I would expect
that we’re going to see more of that, kind of an increase,
you know, in demand for places on the kind of fringe of an
urban area and a decrease in demand for those right at the
center.

But again, you know, kind of as Jerry mentioned,
that changes price dynamics which then can induce a whole
new set of people or the next generation to move in.

But I do think, you know, for multiple reasons
that we won’t see this kind of full work from home shift,
you know, people moving far away from their jobs, you know,
another thing that we kind of mentioned before but it’s
still helpful, especially for young workers, even for
millennials starting their families and moving to the
suburbs to be close to their place of work, close to these
jobs networks, it’s important for career development,
especially for the younger workers, not something that’s
just hard to substitute on line.

So, I guess when we think about, you know, this
just has implications, and when we think about energy
usage, we think about transit, right, maybe fewer workers
on transit every day. We’re taking kind of these short
trips, maybe a greater reliance on long-haul trips, whether that means driving or whether that can be something, you know, more kind of mass transit I think depends on, you know, policy choices and what we invest in in the coming years as well.

MS. GUICHARD: I’m just going to add a bit to the confusion about what people are going to be doing. I think there is some research suggesting that, you know, in an environment where there is no COVID people working from home may prefer to be located in kind of denser areas where, you know -- I think it’s partly leading to the social aspect, like if you’re going to be working from home and be far away from, you know, any cultural and recreational activity, I mean, it’s already being kind of cut away from society, so working from home and being in the kind of denser, maybe not the core of the city center, but being in a denser area where, you know, you can meet people. You step out of your house. You meet people. You go to cafes, restaurants. Even with children you go to the park instead of being in a complete suburban environment.

So, I think in the absence of COVID we would see more with the working from home, we will see more relocation in dense -- denser area rather than commute to rural or suburban areas. COVID may be changing the picture, but maybe not for a very long time, so again,
there are many possible trends, and it’s good for economics and demographics because we can do a lot of research in the years to come.

COMMISSIONER McALLISTER: Thanks a lot. Let’s maybe move over to the next question. This is great. Thanks for all your insights.

MS. TRAN: So, I’m going to go back a little bit. So, we’ll dive into the industry portion. So, as we are in, you know, a pandemic and we are trying to figure out the post-pandemic effects and impact, what industry do you expect will drive our economy in the future? You know, what is hurting, but what will be the future? What will grow in the future? And which industries are just going to lose out at this point, and will probably be obsolete?

Let’s see, maybe Laura, would you like to answer that?

MS. RATZ: Sure. I mean one thing that the pandemic has actually done is hasten this transition from brick-and-mortar retail to online, the Ecommerce purchasing rate.

And again, this is hastening a trend that was already in place. Amazon was already a behemoth and getting larger, but it’s just blown up in the past year or so.

So, transportation, logistics, warehousing, all
those kinds of things I think are going to be a much larger piece going forward.

And the nature of tech jobs has changed quite a bit. I still think that’s going to be a significant driver to the California economy, but it’s going to be more about, you know, these software tools, things to facilitate this new world that we found ourselves in.

I think things like, you know, these personal services and leisure and hospitality, I don’t think they’re going to go away. I do just think it’s going to be a long haul to get back to where they used to be, and no small part because certain establishments simply won’t connect outside of this pandemic.

My dog is (inaudible-dog barking). I’m going to go on mute.

MS. TRAN: Irena, did you have something to add to that?

MS. ASMUNDSON: This is Irena Asmundson from Finance.

I tend to agree with Laura. You know, we are seeing much slower comebacks in the service-oriented factors. And, you know, that’s been hard because they were the ones that had added the most jobs during the previous expansion.

And, so, you know, one of the things that we had
really noticed after the previous recession, the great
recession, was that manufacturing, which still is a very
large sector in California, and California has the largest
manufacturing sector in the U.S., it took a permanently
lower trajectory. So, it was pretty flat. It wasn’t
growing before that recession. It dropped to a new level,
and then it just sort of continued. So, it’s maybe grown a
tiny bit.

In terms of GDP growth, though, it’s been
increasingly large. And, so, you know, we’re kind of in
one of these areas, and as Stephanie mentioned, we probably
do need an enormous amount of retraining because there is
definitely more than enough work for everyone. It’s just
who is going to pay for it, what kind of certifications do
they need, and who is actually going to pay those people a
living wage.

PROP 22 did pass in November. I think that we
are going to be grappling with that. And that interacts
very much with how California’s housing costs go. You
know, we’ve been talking as though everyone can afford to
buy a house or can afford to pay their living costs, but,
you know, our household median income probably didn’t move
that much from 2019 to 2020, and in 2019 it was about
$75,000.

And if the median home price in California, that
sales price, was over 700,000, that means a multiple of home prices to median household income is almost 10, which is completely unaffordable. If that multiple should be something like three or four, then that means that you have to be rich to live in California, and you have to be rich to sort of have the American dream. And that is going to induce a lot of structural unpleasantness.

So, if we did go back to, you know, having the services recovery, and most of the jobs are in services that tend to be lower paid, well, you know, it is going to be very difficult.

MS. TRAN: Thanks, Irena. Would any of you like to join in to answer the question or do you want to move on?

MR. NICKELSBURG: So, we haven’t talked about construction. Irena talked about manufacturing, and, you know, there’s been a lot of -- so I’m going to talk about both of those.

In construction we’re seeing an increase in home construction and warehouse construction. There may be a lot of infrastructure building, and this is the place that at least some of that 1.4 million unemployed Californians might be migrating to, but perhaps training is required for them to do that, especially when it comes to heavy and civil construction and noncommercial construction. But we
see that as a growth area.

And in the second, what Irena said about manufacturing, we’re looking post-COVID at a change in supply chains. Those attenuated supply chains to Asia are going to change, particularly to China. Some of that is going to come back to the U.S. That which comes back to the U.S. will be heavily capital intensive, and we’ll use a lot of robotics and not much in the way of labor, but some.

And if it is not intensive in the use of land, which is expensive in California, then you can expect California to have real advantage in this regard, so that could be a growth sector for employment, not to the extent that others are, you know, but a place that lower income Californians with retraining can move into and make that much more attractive.

So, we did see some growth in manufacturing, and public policy could make it, you know, much more rapid growth, and that will be advanced manufacturing.

MR. LAFORTUNE: This is Julien Lafortune with PPIC.

Another couple industries I’ll highlight as well that we haven’t talked about as much. One is that I think has seen, at least in certain areas, a lot of growth in the pandemic is warehousing and logistics, and this was something that already was on an upward trajectory, but I
think that will probably see increases, and I don’t know if that’s enough to kind of drive recovery, but that will certainly be a big boon to many regions, and, you know, that has implications for energy demands and where workers locate as well as shift way from kind of in-person retail to more online retail and other kind of goods purchased.

Another one that’s interesting that I think maybe Jerry mentioned a little bit earlier on is health. The health sector has been, kind of, you know, growing a lot over the past decades, and really it’s been a source of a lot of these good jobs. So where, you know, Irena mentioned there’s a lot of job growth in these kind of hospitality industries that have been hit particularly hard and food service, those weren’t necessarily the best jobs. And there has been a lot of good job growth at least in terms of those that pay higher wages and get closer to this, you know, affordable standard of living.

But that may change if we start thinking that telehealth is kind of a new modality that could be more, you know, more popular. There’s a lot of jobs that are associated with just one, you know, visit to a physician that may not be required if we shift to telehealth or just, you know, kind of modes of delivering healthcare that don’t require as much in-person interaction. And so that’s kind of the flip side of this. We might see, you know, some of
this growth coming through efficiency, but that may not
necessarily result in greater numbers of jobs in those
industries, and so that’s something I think we don’t -- you
know, we haven’t really seen and will take a while to kind
of see how the full extent of this plays out, but that has
big implications on employment in these industries as well.

MS. TRAN: Great. So, we’re going to move on to
-- while I guess you already touched on some of the
demographics, but let’s touch on them a little more.

So, again, we’re hearing a lot of like lots and
lots of people are moving out of California, within
California, just migrating everywhere because of the
flexibility to telework.

So, we’re seeing this from the Bay Area,
Sacramento. Bay Area people are moving to the San Diego
Area, and they’re searching for cheaper housing than the
San Francisco region, and they’re looking for different
amenities that a house versus like a small condo in San
Francisco could provide them.

So, which regions do you guys think were most
impacted by the -- and will we ever see a higher population
despite the lower birth rates that we’re seeing right now?
And we’re looking at like three, five years, 10 years into
the future.

I guess we’ll ask our DOF expert Irena.
MS. ADMUNDSON: This is Irena Admundson from Finance.

So, you know, this really depends, and I will caveat this with lots of people have written multiple times about how California is dead, and people are leaving California, and California is terrible, and California is a wonderful place to live, and it has always sort of come back and there’s been this innovative spirit.

Things are a little bit different now, and they are different because they are interacting with some of these demographic impacts.

So, at this point many of the homeowners are older. They’re not in the labor force. There is that huge baby boomer contingent which is now pretty firmly into the retirement age. And there has not been the same increase in homeownership in the prime working age force because there has been increased generations.

And, so, if we want people who are going to be having those kids, who are going to, you know, be starting their careers here, who are going to be starting the businesses here, who are going to be like, you know, putting down roots here and continuing that population growth in California, you actually do need to give opportunities to those people and not make it so that only rich people can live here.
So, you know, how this is going to play out is very uncertain, but that is the one thing that gives me pause, and, you know, makes me think that there are some factors that are different this time than there have been in the past.

And, so, I’ll --

MS. TRAN: Do you think we’ll ever get to the one percent, or just slightly above one percent population growth ever in the near future, or are we projecting a lot less than one percent?

MS. ADMUNDSON: The current set of projections that we have that we released pre-COVID, so, last January, shows that we are going to have slowing population growth, and that’s -- so, our slowing population growth does assume a mean reversion to a higher level of international migration. So, absent that, we’re going to get pretty close to -- we would probably go negative.

In the current set of projections it does assume a higher international migration. We get very close to zero by the end of our projections that go out to 2060. So, one percent is going to be very, very difficult to achieve without an enormous amount of housing growth, and voters just don’t seem to want that.

COMMISSIONER McALLISTER: Irena, maybe you just answered my question with that last sentence, but I guess
do you do scenarios about, you know, different housing trajectories and how much housing we can get built and how that would affect the sort of long-term growth? I mean, you know, maybe policy-based scenarios or that sort of thing. I mean it’s clear that we’re only getting, you know, a fifth, or a sixth, or an eighth, or you know, pick your number, of the housing we actually need to get some reasonable multiple in terms of income to housing costs.

So, yeah, like how do we grapple with that and make suggestions for policy and, you know, chart a path forward that seems more sustainable?

MS. ADMUNDSON: I think that, you know, we haven’t done specifically housing-based scenarios. We’ve done some risk scenarios in terms of what if things go better than our current baseline scenario, what if things go worse. It’s not specifically tied to housing, but housing is kind of within that.

And so I think everyone in California agrees, housing is really expensive. We probably need more housing. And then when it comes to where are we going to put that housing, then -- and, you know, how are we going to have it be done in an environmentally friendly manner so that it’s not going to burn up every three years, that’s kind of the issue.

So, there’s a big divide between what we want big
picture and what we’re actually going to do to get there.

MS. RATZ: One thing I would just tag on there about slowing population growth, it’s not something that’s strictly speaking unique to California. We’re seeing that nationwide.

You know, as Irena touched on, that’s a lot of that has to do with birth rates, and actual immigration will probably be the saving grace for California, but this is part of a larger trend, and, you know, very few states will buck that trend.

MS. ASMUNDSON: I will say that one of my uncles lives, you know, he was born in the forties and he was very into this zero-population stuff, and he used to sort of rant and rave about, you know, when I was born there were like two billion people, now there’s eight billion people, and, you know, at some point there is a limit. I think that we’re never going to get -- we’re hopefully not going to get to a Malthusian sort of turnaround. But for environmental reasons it could turn out that, in fact, our population worldwide starts dropping, and in the U.S. it does start dropping. This has happened in other countries.

The issue here is that you have to have consistency. So, you can’t simultaneously assume that your tax revenues and your bond payments and, you know, what you’re planning for in terms of energy production and all
of that, you can’t assume that it’s going to continue
growing when, in fact, it’s dropping. That creates a
problem. But you can plan for what you think is actually
going to happen, and you can plan for a dropping population
in California. It’s just that consistency is key.

MS. TRAN: And the Department of Finance
projections do include the COVID-19 impact, the cases and
death rates.

MS. ADMUNDSON: We do not have a new set of
projections out. Our last set of estimates that we
released covered through July of 2020. Those were released
in December. And then we are hopeful that we are going to
get the 2020 census numbers, but then we’re going to have
to spend some time interpreting those because 2020 was just
a weird year. And then we probably will rethink everything
sometime in 2022.

We might include a new rebenchmarking to the new
lower level, but not rethink all of those assumptions that
go into it before then.

MS. TRAN: Okay, great. So, now I’m going to
move over to Le-Huy’s set of questions for you guys, so,
Le-Huy.

MR. NGUYEN: Thanks, Nancy. Yeah, we’ve been
having such a great conversation about like economics, and
then the housing, especially new construction or how people
are utilizing the space. So, it’s great.

But before we dive deeper into that, you know, more like on the population side there’s something else I wanted to ask was, you know, so we talk about the population growth, but how do you see California’s average house size changing over the next 10 years? And, you know, there’s probably going to be some regional differences, so if you guys want to expound on those a little bit. Maybe, Stephanie, would you want to kick us off on this one?

MS. GUICHARD: So, I mean at SANDAG we have a pre-COVID forecast where we are just slightly declining the size of households from, I don’t know, like 2.8 to 2.6. But, again, possibly what’s happening right now, everything you’ve discussed so far could change this trend and we still don’t really know how it’s going to work.

So, for instance, let’s say you are -- many people leaving California because housing is too expensive, and then you manage to get lower house prices, and then young people decide to leave their parents house and to buy this new available housing. Then you would have a decline in the -- softer decline in the size of the households.

One other thing that we don’t know what’s going to happen, what’s going to happen with the retired people. So, as Irena mentioned we have many households which are retired. They are typically small-sized households.
Whether they’re going to stay in California or not, is also going to have some impact. If they leave California and they free these units for people who are going to start a family, we could see the evolution going the other way.

So, I think for now we stick with our conservative forecast and we wait a few years to see what’s happening with the migration trends, whether, you know, they have been exacerbated by COVID or whether we go back to the kind of environment was (indiscernible) before.

MS. ADMUNDSON: We -- sorry, this is Irena from Finance.

Can I weigh in with like one weird data thing that’s been going on that we’re trying to grapple with as well, which for household size is -- so when you calculate household size, there’s sort of -- you can take the number of housing units and the number of population and then sort of divide the two.

But, as we’ve been seeing, there’s also an inequality in who owns the homes and what is happening with them. So, Air BNB kind of brought this to the fore where people were buying houses and then they were mostly using them as sort of temporary rentals, and it’s not actually fully occupied all of the time as, you know, renter-occupied units.

Or people are, you know, for example, interest
rates are low, wealthier people did very well. Just anecdotally, I heard a lot of people bought a second home in 2020 because they could afford it. And so when the housing stock becomes this kind of like bimodal type of distribution where a couple of people have a lot of housing and the vast majority of people don’t have a lot of housing, the average household size is not necessarily the best indicator of what’s going on with households, and is not necessarily going to be the best indicator of sort of the load that each individual housing unit or each neighborhood is going to have.

So, just wanted to bring that up because I think that it matters for the electricity forecast.

MR. NGUYEN: Actually, that’s very helpful for us to keep in mind, you know, like these like different scenarios that we want to think about, especially with the future and things being, dare I say, uncertain sometimes. Thank you.

Yeah, so now we can talk about some of these like new constructions or just talking about homes. Because you know if we have a shortage of supply, but then now we have COVID, like what are we going to be seeing in new construction. So, are we going to see more single-family dwellings, multifamily dwellings, or are we going to see more commercial space developed? So I kind of wanted to go
in that direction. And, of course, we’re seeing with all
the questions that there’s state regional differences.
Yeah. So, Jerry maybe you want to start us off with this
one.

MR. NICKELSBURG: Okay. So, for some time now,
some time being since basically the end of 2007, the mix
between multifamily construction and single family detached
home construction has been about 50/50. Prior to that,
single family home construction was dominant in California.

In our forecast we don’t have the 50/50 mix
changing much because the large single-family developments
in places like Mission Viejo, south Riverside County, far
north Los Angeles County, they’re far away from jobs, and
that means more commuting, longer commutes absent things
like new transportation modes.

So, we’re looking at it being about 50/50
multifamily versus single family, and our forecast has the
home building going up to about 130 -- about 130,000 units
per year which certainly doesn’t make any dent in any sort
of measure of affordability.

So, that’s the distribution we see is single
family out in the periphery, and that’s about half the
housing, multifamily in the denser urban areas, some
conversion of retail space to multifamily housing. But
this is going to be a growth area because today we’re only
building just over a hundred thousand units.

MR. NGUYEN: Great. Thanks, Jerry. You know, it’s funny also we’ve been talking about is the transportation, and, Jerry, you described that, long commutes, and what not. So, you know COVID has kind of changed -- it has changed our office environment. And if we see it as, you know, permanent change where more people are being allowed to work from home, and such, you know, how will all this in the transportation sector from like a personally use, but also like the public system itself, like public transit. Yeah, so, Julien, do you want to give a crack at this one?

MR. LAFORTUNE: Yeah, sure. And this is Julien Lafortune from PPIC.

So I guess I was kind of touching on it in response to an earlier question that I think my expectation is we’ll probably see -- we won’t see as much of a shift to kind of full-time work from home, and maybe more of a shift to this part time work from home modality. And, so, for those reasons, you know, I think we will -- you know how does that impact transit, right. So, I think we’re going to see potentially more workers living a little bit further away from this urban core, and that kind of aligns as well with maybe millennials starting this transition to, you know, forming families.
And I think that just, you know, leads to this kind of in equilibrium where there’s a great reliance on driving and a greater reliance on kind of long-haul transit trips. And especially, you know, if you’re further away from some of these center city amenities, you know, there’s less of a reliance on transit, you know, for non-kind of work trips, right, and so that’s something I think maybe for environmental goals that’s a bit of a worry, right. So, on one hand we have a lot.

You know, maybe workers are staying from home -- you know, working from home more so there’s less of a reliance on actually going out and using this type of energy and these resources to get from point A to point B, but more of that kind of shift, the compositional shift that would be more towards driving and less towards systems of mass transit.

But, you know, I think another thing that I’ll kind of add here that’s interesting is I think some of this depends on what happens to demand for single family homes and kind of back to the earlier demographic question we had, what happens to birth rates and family formation. And so we’ve seen that declining birth rate for a long time now, and so whether, you know, a lot of these, you know, millennials, kind of my age cohorts, right, if they’re actually starting to form families or not I think we’ve
seen a big delay in family formation, and I think the pandemic is delaying that further.

And, so, I think it’s just kind of a wait and see on that because that kind of changes a lot of the, you know, individual demand for space and where you work and where you live. So, I don’t know if there’s a clear answer.

I haven’t seen any kind of good data that points one way or another, but I do think it kind of, you know, tilts us in this direction where we’re getting, you know, further away from this kind of dense center with a lot of kind of, you know, reliance on mass transit and less on personal transportation. Maybe at least there’s some pressure kind of moving us some steps back away from that in the future.

MR. NGUYEN: Great. Stephanie, do you have some comments about this from a regional point of view?

MS. GUICHARD: So, I mean, we -- I mean we shouldn’t -- we shouldn’t forget that there is a substantial share of the population that is difficult to believe, doesn’t have a car and relies on transit. And what we saw during this crisis is that many of our essential workers rely on transit. I have some data for San Diego that I cannot find right now, but -- so, besides the -- and, you know, most of these jobs that cannot be
done from home, they are also some of the jobs that people doing these jobs rely on transit, so for us as a transportation agency our priority is to make sure these people continue to have access to opportunities and have more access to opportunities can, you know, have access to jobs.

And we talk about this, you know, the transformation of the economy, so if you have a very efficient transit system you get more access to these people to different job, but also new job opportunities to training, so we think, you know, transits and public transport is going to remain very important.

The other thing I wanted to mention, I mean if we think about the -- something we’ve noticed with, you know, working from home situation is that although initially traffic on our freeways declined a lot, it has recovered faster, people going back to the office. And this is kind of in line with what we knew before was that when people work from home they use their car a lot because, you know, the trips where you would start from -- you leave your home, you go somewhere. On your way to work you’re going to drop your kids at school, or you’re going to do groceries on your way back. You’re not going to go to work, but you receive the groceries. In a environment where the schools are open you will drive your kids to
school, and the time you save not being stuck in traffic
going to work because you work from home, you may use it to
drive somewhere else, to drive to the park.

Here in San Diego I noticed something during the
summer is that there were massive traffic jams around the
beaches because people were working from home, kids were
home schooled, and everyone wanted to take a break from
that environment, so there were more traffic in the kind of
recreational activities.

One of the other things we learned from this
crisis is although there is still a lot of people driving
around, what working from home does is that it reduces the
traffic jam in the peak hours. So, we haven’t seen
congestion in San Diego like as we used to see it.

I let Jerry say what he is experiencing in LA.
It may be different because traffic jam in LA so used and
maybe you still have traffic jam in LA, but I can tell you
in San Diego even with just 10 percent of the cars not
driving we have seen congestion reducing by a lot. So,
that’s something that’s important for us going forward, and
if we talk about transport, what we have seen during this
crisis is more people using active transportation, bikes,
walking, and right now it may be a substitute for, you
know, going to your favorite fitness activity. This may
become a habit, and people, you know, once you have
experienced biking around your house, you may continue
biking to work, if it’s possible, so we -- I think there is
more demand for, you know, wider variety of transportation
mode with this crisis.

And I would just let Jerry tell us what’s up in
traffic in LA.

MR. NGUYEN: I’m really interested. We always
see around, you know, that traffic, and, you know, the East
Coast we hear people that think, oh, how’s LA? What’s
going on? How are you guys driving?

MR. NICKELSBURG: So, I don’t have data on this,
just anecdotes.

And I leave in a beach city, so what Stephanie
said was right. We used to have our traffic jams on the
weekends, and now they’re every day.

But commuting from the more affluent parts of LA
into downtown, that seems to be much lighter. But
commuting going the other direction from the eastern part,
the more affordable parts of LA, into the western parts, so
these are going to be a lot of essential workers,
construction workers, and the like. It’s not where it was
before, but it certainly has come substantially back. So,
I think the Los Angeles experience is very much, you know,
what Stephanie has told us is the San Diego experience.

And so that’s my anecdotes, but I don’t have any
real data on what’s happening with commuting and congestion in Los Angeles.

MR. NGUYEN: That’s all good. You know, little insights here and there always help. So, thank you, Jerry.

MS. ASMUNDSON: Can I bring up one thing?

MR. NGUYEN: Sure, Irena.

MS. ASMUNDSON: This is Irena at Finance. So, you know, we know that a lot of emissions come from the top percent of the income distribution. And, so, you know, as Stephanie mentioned, essential workers, lower income workers, tend to rely on transit, and if you’re richer then you can afford to have a car, or you can afford to take lots of plane trips, and that behavior has been disrupted during the pandemic.

And, so, are there things that we can do to continue changing the behavior of that small percentage of the population who really imposes the most externalities on the environment? And encouraging that and making sure that we can continue to disrupt that, that I think is a big opportunity for us. So, just wanted to sort of connect that dot.

MR. NGUYEN: Thank you. Yeah, the conversations, I think we’re running short of time.

There’s something that I think will be of big interest to folks will be just the wildfires, you know,
every day in the news this summer. So, like what demographic trends are likely to be impacted by the increasing frequency and magnitude of wild fires in California? Laura, did you want to take a crack at that one?

MS. RATZ: Sure. So, I think what you’re asking is will like the increase in frequency of wildfires, you know, will in some way ding population growth in California or hurt migration to and from California.

MR. NGUYEN: Uh-huh.

MS. RATZ: And you would think, you know, clearly as an East Coaster seeing this on the news, you know, it’s like why would someone want to live in this, you know, clearly dangerous place. But if you look at the -- if you actually start to dive in and look at the data I don’t think there really is a compelling story that fires do dissuade people from moving or staying in California. You know, actually ran several regressions on this, you know, trying to tease out is this actually happening. And while people certainly are leaving the state, the reasons we’ve already talked about. It’s a cost story. It’s nothing -- I won’t say it’s nothing to do with the fires, but I don’t think it’s going to be this huge demographic driver that you might at first glance think.

And people -- I think people choose to live in
California for a myriad of reasons, and I don’t think the fires are enough of a deterrent, at least not yet.

MR. NGUYEN: The fires are not.

MS. RATZ: And hopefully we don’t get to that point.

MR. NGUYEN: I guess something I was thinking about, like potentially people are just migrating to different parts of California, Laura, I guess.

MS. RATZ: Sure, but again, I do still think that will be driven more by costs than anything else. To some extent some of the places that, at least this past year like if you look at some the fires and around the wine country, and these are incredibly expensive areas to live in to start with, so I don’t think it is just going to boil down to costs and it’s happening to coincide with, you know, natural disasters.

MR. LAFORTUNE: One thing. This is Julien from PPIC, and I’ll just kind of piggyback on Laura’s point is I agree and I definitely buy that we haven’t seen that in the data yet and that it’s probably not likely to be a big driver in terms of just kind of net overall migration.

But one kind of consideration or worry, at least that I have, is that part of the reason we still have a lot of, you know, people moving in, and most of these are kind of wealthier individuals that are moving in and kind of
propping up some of these migration numbers, is just that there’s a California premium. Housing costs, the costs of living are so high, and some of that comes from the amenity value of living in California, and I think the wildfires as, you know, currently the kind of distribution of where they are, but then the impacts of the smoke which kind of hit, you know, individuals and households across the state, I do think that does, you know, put kind of downward pressure on this amenity value or this premium you’d pay to live in California.

And the extent to which this gets worse or the coming years and decades I think is something to keep in mind and is a big worry that could kind of, you know, make it more difficult to continue attracting people to kind of offset these outflows when the costs are already so high and some of these benefits maybe aren’t as great, or the difference, you know of living in kind of beautiful, sunny California relative to -- and not having winters relative to somewhere else, I think that that kind of differential is decreasing due to the effects of climate change. I think that will eventually over the long term have implications.

MR. NICKELSBURG: So, I’m going to take a little different view from Julien. This is Jerry from UCLA.

Climate change is everywhere, and so, yes, we
have more wildfires. Texas and Florida have more sea level rise and hurricanes. The Northeast has more polar vortices. And so I’m not sure that that differential is going to be squeezed by climate change. It may, in fact, work the other way, but I don’t know, have no idea what the answer is.

But I think the answer to the question about the impact of wildfires comes from an observation of whether or not California’s rebuild in areas that have been hit by wildfires or other -- wildfires, or earthquakes, or whatever. And I think the answer is a resounding, yeah, we look at it and say that it’s really tragic and it’s horrible, and where is the contract that you rebuild. And we see that in the Woolsey fire area in southern California, in the Thomas fire area. It’s happening in Sonoma County. It is more a function of being able to finance the rebuilding, but the abandonment of areas that have been struck by wildfires just doesn’t seem to be happening. It may happen in the future, but so far we don’t see it.

COMMISSIONER McALLISTER: May I ask a quick question on that? What’s the insurance overlay on this, and how do you think that’s evolving?

MR. NICKELSBURG: So, casual observations says those who have insurance are rebuilding or money, are
rebuilding more rapidly. Those who don’t, you know, who maybe are naked insurance may be moving out of state because they just can’t afford to rebuild, but they’re selling their properties. And, so, you see in less affluent areas in the urban rural interface, urban wilderness interface, slower rebuilding because the folks there were less affluent and had lower insurance coverage.

So, it does matter. It matters in terms of the time. But I don’t know of any evidence of abandoning a fire area. And, of course, a lot of the fires are up in the Sierra in very sparsely populated areas. But here in California where they hit a lot of homes and in the North Bay where they hit a lot of homes you are seeing rebuilding.

MS. ASMUNDSON: I did also want to interject one other thing, which is that the nature of how we provide utility services and, you know, our grid and some of our fire insurance, a lot of that is not entirely priced according to the risk. As we make public policy choices that, you know, we’re sort of going to not penalize people for living in rural areas, and so we’re going to essentially subsidize the provision of services to them, or if an emergency happens that is actually very predictable, we’re going to, you know, invoke emergency declarations and help them out.
And, so, one of the hard things I think in getting to this here in that carbon world is that we sort of assume that the past is a predictor of the future, where as we know that the future is on a trend, is contradicting some of these past historical experiences.

And, so, grappling with that and setting up the system so that you do have that consistency internally is one of the things that hopefully you’re going to be grappling with as you do your forecast.

MR. NGUYEN: Thank you. So, I think we’re just out of time for just the standard questions, so I think the dais or the commissioners if they have any other questions that have not been asked today.

COMMISSIONER McALLISTER: I mean, I have tons of questions. I think, you know, these are broader than even this panel, even though you all are spectacularly knowledgeable about a broad variety of issues. But, yeah, that last point I think is very apropos, you know, how -- when the U.S. developed, you know, not just California but throughout the world, parts of the U.S. there were public policy choices made to, you know, cross-subsidize in a way that benefitted everyone in terms of that kind of growth and other imperatives at that time. And to some extent the imperatives have changed, right, as we confront climate, and so, are we up to this task of moving this ship,
steering this ship in a different direction that’s more
aligned with long-term sustainability in our current
policies, right, for 2045 and beyond.

So, those are big questions and we may not be
able to answer them all in the forecast, but we certainly
need to bring them up and begin to grapple with them in
earnest.

I wanted to open up to Commissioners Monahan and
Douglas in case you had any questions that we can answer
quickly. Also, we need to get to some Q and A beyond the
dais.

COMMISSIONER DOUGLAS: Nothing from me, thanks.
I just wanted to thank the panel.

COMMISSIONER McALLISTER: Okay. Me too. Great
panel. Commissioner Monahan.

COMMISSIONER MONAHAN: Yeah, it really was a
great discussion and it seems like there’s a lot more
questions than answers at this point, and I do think this
issue that was raised multiple times about, you know, the
fact that it’s not affordable for many people to buy a home
in California and to see if there are any long-term shifts
due to this work from home and the opportunity to live in
other places, I’d be really curious to see how much that
plays out because, I mean, we need to make a California
more equitable. We need to make it easier for young people
to live comfortably and not have to sell their souls in order to live in California, so this will be really curious to see how this plays out in the longer term.

COMMISSIONER McALLISTER: I mean this structural deficit, this housing structural deficit that’s been going on for, you know, it’s not a -- annually, yeah, there’s a deficit, but it’s accumulating over time. We have more than a million overall housing deficit in the state right now, and so how do we, you know, kind of start to close some of that back and get housing more affordable. I think that’s a huge overlay.

I continue to be curious or just really interested in this idea of what happens to the rural areas when there are pockets of affluent people that move out of the urban core into the rural areas, and really what scale that’s going to happen at, you know, as we sort of settle into some new normal about telework and all these professional level telecommuting tools. I think that’s potentially, at least, a key question for energy demand at the local and sort of distribution system level. You know, what is that going to look like for a distribution grid, and how is it going to drive investment in new and different ways, how is it going to drive consumption and low shapes and reliability.

And as the customer base changes in some of these
traditional slightly lower reliable, you know, slightly
more vulnerable distribution grids is there going to be
some need for shifting investment patterns by the retail
service providers. So, I think there’s kind of a
conglomeration issue there that’s really interesting and is
going to change things.

And, you know, we’re in this distribution,
distributed energy world and it’s only going to accelerate,
and so how is that going to impact our public policy. So
the econ demo trends are really important to kind of begin
to tease that out. So, anyway, I’ll get off my soapbox and
see if there’s any other questions from the dais. No, okay
great.

And I think so with that we’re at 11:11. Maybe
Nancy or just panelists, do we have time for maybe some
final comments. The public comment period is scheduled to
start for a few minutes at 11:20. We’re not quite there
yet. We could start it early alternatively as well.

MS. RAITT: Commissioner, this is Heather. Yes,
I think we could do that.

So, just as a reminder, we were going to take a
couple of sessions from the attendees on the closed
sessions on the Q and A, too.

COMMISSIONER McALLIST IER: Oh, great.

MS. RAITT: I just needed to say that. Thanks.
COMMISSIONER McALLISTER: You’ve got that starting though at 11:20, correct? Well, we could go ahead and get started with the Q and A from the online attendees as well. Do you want to go ahead and get started with that, Heather?

MS. RAITT: Sure, it’s okay.

COMMISSIONER McALLISTER: Okay, great.

MS. RAITT: We have Mark Palmere, he’s from the Energy Commission, to moderate the Q and A. And Mark is our lead for the forecast for electric light duty vehicles. Go ahead, Mark.

MR. PALMERE: Good morning. Good morning, Commissioners, good morning panelists.

Yeah, we have a few questions in the Q and A, and again, feel free to add yours if you’d like.

I notice -- it looks like a couple of them are actually about transportation. I may briefly address them, but just as a reminder, we have one of the afternoon panels is on the future of transportation, so I definitely recommend maybe asking them again there.

But to start with I do have a question about the economics of our future from Giovanni Circella. And his question is, “We want to know if there’s a serious risk that with increased remote working and technology, the local scale and the economies of proximity will become less
relevant while the economies of scale will prevail,” and I think he thinks that may advantage large companies and depress small businesses even more. So, I don’t know if any of the panelists want to tackle that one.

MS. ADMUNDSON: So, this is a competition -- this is Irena from Finance. Sorry. So, this kind of goes to the competition aspect. And, you know, the past four years and probably the past couple of decades there hasn’t been as much antitrust sort of enforcement as maybe there should have been. And so a lot of the trends that we talked about on our panel, the inequality, the wealthy people sort of having more opportunities than others, this all feeds into this competition aspect and this larger companies versus smaller companies and who has, you know, the opportunity to compete and to grow and to start things up.

So, you know, I don’t necessarily know that this is a COVID thing. This is more related to competition. But I think that Giovanni is probably right to worry about how these two things intersect.

MR. PALMERE: Any other panelists comments on this one? Thank you, Irena.

MR. LAFORTUNE: This is Julien from PPIC. I guess I can add, and, you know, again, I think this is somewhat speculation, so it’s hard to know what -- you know, how this will play out, but there’s a sense in which
this could go in the opposite direction as well, increased remote working and kind of reliance on, you know, technology could advantage smaller firms that no longer have to be in these high-cost locations. They don’t have to have as much of a footprint. It may be cheaper to find workers, and, you know, workers actually in many cases can be more productive working from home, and so that -- I guess I’m just saying it’s not a given that this is necessarily going to advantage large companies, but, you know, how this plays out I think, as I said, this is just speculation on my part.

MR. PALMERE: Great, yeah. Thank you, Julien. That’s something to be thinking about as well. There’s certainly a lot of varying factors.

Yeah, I guess -- it looks like we do have time for another question. I’m going to ask -- this one from Robert Perry, and I would definitely recommend possibly asking it again to the transportation panel. But while we have time I will ask it to our morning panel here. And he’s kind of interested in the knowing if any of you have any thoughts, I know we talked about -- a little bit about traffic, but he’s kind of curious about I guess the ownership of cars in general and that future where teleconference in -- he says, “Teleconferencing in combination with a robust internet could spur a multi-modal
transportation system where the ability to participate wherever you are reduces the perceived need to own a car.”

And he thinks that could reduce carbon emissions and have some positive environmental and health impacts.

Any of you guys have studied that or have any thoughts, as I said, we’ll definitely hope to get to this in the transportation panel, but if any of you have any kind of thoughts on that you’re welcome to share them now.

MS. GUICHARD: Yeah. This is Stephanie from SANDAG. I feel obliged to take this one given that we are a transport agency.

As I mentioned earlier, you know, even if people don’t need their car to commute to work every day with the teleworking and teleconferencing, they use their car for other trips, to see friends, to do the groceries, to drop the kids at school. So, working from home and teleconferencing doesn’t reduce the need to own a car by as much as you would think.

And the other thing is because you have this need to do all these other trips there is no alternative transportation system like a good public transit system. Then the need to own a car persists, and so that’s what we try to do in San Diego, is to make sure that people have other options than taking your car.

You know, even one of the things that has been
studied is just to be able to enjoy the beaches of San Diego. If you live far east and you don’t have a car it’s almost impossible to enjoy the beaches because there is no reliable public transportation to take you there, and so you miss out on one of the amenities of the region. Or you may find a way to go taking two or three different buses and waiting half an hour between the different connections.

So, there is -- what I want to say is, first, there is still a need of people to get around, even if it’s not to get to work. And, second, to reduce the need for a car you need to have alternative options that are, you know, efficient.

MR. PALMERE: Yes, thank you, Stephanie. That’s certainly -- I do work on our light-duty vehicle forecast, so we’ve been looking at a lot of different projections. But, yeah, you definitely did a good job of like summarizing all the different factors for why people might own a car or not.

And, yeah, thank you to our panelists for your question-and-answer answers. I think we’re now going to transition to the public comment period, and so this is for if anyone has any public comment, so, Heather, I guess I’ll throw it back to you.

MS. RAITT: Sure. Thank you, Mark, and thank you to each of our panelists. That was really a helpful
discussion, and thank you to Nancy and Le-Huy for
moderating that.

So, we will go on and move to the public comment
period. The panelists, you’re welcome to turn off your
videos at this point.

And we will request that only one person per
organization comment, and will limit comments to three
minutes per speaker.

If you’re using the online Zoom platform, please
raise your hand to let us know that you’d like to comment
and we will call on you and open your line.

If you are on the phone you can press star nine
and that will raise your hand, and then star six to unmute
your line.

With that, we have Rosemary Avalos from the
Public Advisor’s Office to moderate the public comments for
us. So, go ahead, Rosemary. Thank you.

MS. AVALOS: Thank you, Heather. Good afternoon
to everyone. I will first call on attendees using the
raised hand feature on Zoom. Please state your name and
affiliation and spell your first and last name. And, also,
please do not use the speaker phone feature because we may
not be able to hear you clearly.

As I look right now at our list I don’t see any
hands raised, so I’m going to go ahead and give it a few
more seconds.

And also a reminder, the star nine feature on your phone is to raise your hand, and the star six to mute and unmute your phone line.

So, are there any comments? All right. I’m not seeing any hands raised, so I’ll go ahead and turn this over to Commissioner McAllister and I’ll still keep an eye on the raised hands. But right now, no hands raised. Thank you. Commissioner McAllister.

COMMISSIONER McALLISTER: Thanks, Rosemary. I’m a little surprised because there’s so much up in the air here and so much uncertainty. And we talked about a lot of that throughout the course of this first panel, so I wanted to just thank our panelists again for your insights, and hopefully we can draw on you going forward as questions come up.

But, yeah, I would really invite people listening in to ask questions, you know, in particular just how it’s related to all the different themes which are pretty weighty, meaty things that we’re wrestling with and trying to help us elucidate a path forward and form the forecasts.

Obviously, at the Energy Commission we’re trying to get a handle on how all this will influence energy demand and, so, I think the sort of geographical distribution questions, the demographics, we didn’t really
talk about regional migration within the state. And if those trends maybe would change a little bit because of some of these choices that people who can actually we know are making to some scale. But lots to -- lots of information to work with and lots of data that hopefully will be coming in to help us chart a path forward in the forecast.

I will just open. I’ve asked my questions along the way so I don’t have any new questions. But I just want to give one final opportunity to my colleagues on the dais in case they have questions. And wondering if there’s time, Heather, for rapid comments, or should we close it out?

MS. RAITT: Sure, we could do some rapid fire close out comments.

COMMISSIONER McALLISTER: Maybe we’ll just go each person on the dais and give you a last opportunity to say anything that hasn’t been touched upon through the course of the morning.

COMMISSIONER MONAHAN: Well, I want to thank the panel. It was really an interesting discussion, and in my mind somehow raised more questions than answers I think at this point. But just really appreciate the conversation, and the dialogue, and the thoughtfulness, and we will be wrestling with these. I imagine next year we’re actually
going to have a lot more to say about the long-term implications than we can this year. But just really appreciate the conversations. Very helpful.

COMMISSIONER McALLISTER: Great. So, no requirement to make final comments, but if the panelists want to make some final wrap up comments, jeopardy style, it will be good. Not necessary, but if you want to, feel free and then we’ll wrap it up. Okay. Well, Heather, I’ll pass it back to you then.

MS. RAITT: All right. Well, then, I’ll just remind folks that written comments are welcome, and they’re due February 23rd, and invite everybody to join us for the afternoon. It starts at 1:00 o’clock, and it has a separate sign in or log in information. You can see the webinar I.D. number and password posted on the site, and they’re available on the notice that’s posted on the website.

So, with that, thank you so much everybody, and I hope to see you again at 1:00 o’clock. Goodbye.

COMMISSIONER McALLISTER: Thanks. See you in the afternoon. Thank you.

(Off the record 11:26 p.m.)
REPORTER’S CERTIFICATE

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 13th day of April, 2021.

PETER PETTY
CER**D-493
Notary Public
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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 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 13th day of April, 2021.

[Signature]

Barbara Little
Certified Transcriber
AAERT No. CET**D-520