DOCKETED	
Docket Number:	20-IEPR-02
Project Title:	Transportation
TN #:	235856
Document Title:	Transcript of September 25, 2020 Commissioner Workshop on Approaches to Assessing Funding Program Benefits
Description:	N/A
Filer:	Cody Goldthrite
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	12/4/2020 12:08:43 PM
Docketed Date:	12/4/2020

CALIFORNIA ENERGY COMMISSION

In the matter of:

2020 Integrated Energy Policy Report Update (2020 IEPR Update)	)	Docket No. 20-IEPR-02

COMMISSIONER WORKSHOP ON APPROACHES TO

ASSESSING FUNDING PROGRAM BENEFITS

REMOTE VIA ZOOM

FRIDAY, SEPTEMBER 25, 2020

1:00 P.M.

Reported by:

Martha Nelson

APPEARANCES

COMMISSIONERS

Patricia Monahan, 2020 IEPR Update Lead Commissioner

Karen Douglas, Commissioner

Steven Cliff, Commissioner

CEC STAFF

Heather Raitt, IEPR Program Manager

PUBLIC ADVISOR

RoseMary Avalos

MODERATOR

Charles Smith, CEC Transportation Policy and Analysis Office

PRESENTERS

Susan Ejlalmaneshan, California Energy Commission

Kersey Manliclic, California Air Resources Board

Anthony NG, California Energy Commission

Gia Brazil Vacin, GO-Biz

Andres Ramirez, Pacoima Beautiful

AGENDA

P R O C E E D I N G S

1:00 P.M.

FRIDAY, SEPTEMBER 25, 2020

MS. RAITT: Good afternoon everybody. Welcome to today's 2020 IEPR Update Commissioner Workshop on Approaches to Assessing Funding Program Benefits. 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 the Executive Orders N-25-20 and N-29-20, and the recommendations from the California Department of Public Health, to encourage physical distancing to slow the spread of COVID-19.

Instructions for attending or participating in the meeting were provided in the notice and included -- or include both internet and the call-in options.

The notice and today's presentations have been docketed and their posted on our website.

All IEPR workshops are recorded. And both a recording and written transcripts will be linked to the CEC website following the workshop.

We will have an opportunity for

participants to pose questions to the speakers today. Unfortunately, we will not have time to take questions beyond a few of the ones from the Q&A. So alternatively, you're welcome to rephrase any questions you have and raise them in the public comment period at the end of this workshop.

But for those using Zoom online, you can click -- oh, I'm sorry.

If you wanted to make a comment, you can just do so at the end. And if you're online on Zoom, you can raise your hand. You can use the raise-hand icon to let us know you'd like to make a comment.

And for those using the phone, press star nine to raise your hand, and we'll open your line during the public comment period.

Alternatively, written comments are welcome and they are due at 5:00 p.m. on August -- excuse me, October 16th. I don't know what month I'm in. Again, the notice provides all the information for providing written comments.

And with that, I'll turn it over to Commissioner Monahan.

Thanks.

COMMISSIONER MONAHAN: Thanks Heather.

So it has been a very exciting week in California. For those who were not reading the news, Governor Newsom has, on Wednesday, announced the new Executive Order that put California on the path to fully electrify transportation -- well, I should say, electrify as much as we can in the transportation sector.

And so that, for somebody who's been working -- I've been working in transportation for almost my entire career, over 25, 30 years -- oh, my gosh, over 30 years -- and Governor Newsom announcement, I got to say, takes the cake in terms of, in the United States, a new course for really veering out pollution in the transportation sector.

He was motivated to do this because of climate change. And I think, you know, seeing, in particular, the wildfires and their effect on all 40 million residents in the state of California, I think all of us have been, you know, suffering from the air pollution and from the fears of wildfires. And it just kind of brings home how much climate change is disrupting our lives. And it's not just climate change but climate change is definitely a contributing factor.

And so the Governor's announcement, I think, really gives this workshop, actually, more meaning because we want to make sure that we're doing all that we can with our funding programs to direct our funds in a way that supports the state goals, helps clean the air, and helps all residents benefit.

And I cannot emphasize this enough, this has to be a transition that benefits everyone, and especially disadvantaged and low-income communities that are often disproportionately burdened with air pollution. So we are committed to an electrification for all and with a special focus on disadvantaged and low-income communities.

So I want to open it up to my fellow -- I think Commissioner Douglas is on the line. I'm really happy to welcome Steve Cliff, who is the Deputy Executive Officer at the Air Resources Board, who I'm hoping will have some great words of wisdom for us this afternoon to kick off the workshop.

So, Commissioner Douglas or Steve, would either of you like to un-mute and start your video?

COMMISSIONER DOUGLAS: Hi. Good afternoon, Commissioner Monahan. Good afternoon everybody. I just wanted to say I'm looking forward to today's presentation. I've enjoyed the transportation-focused IEPR workshops and learned a lot.

And, obviously, Commissioner Monahan noted the Executive Order issued yesterday does bring us into a new era, in a sense, that we can really see the future in front of us in terms of zero-emission transportation. And we've got a lot of work to do to get there. I know that we're up to it. And, you know, the kind of workshop that we're having today where we look at the benefits and assessment of outcomes from our funding program, you know, is part of that journey.

So I think that's all I wanted to say by way of introduction. And I look forward to the workshop.

COMMISSIONER CLIFF: Well, thank you, Commissioner Monahan and Commissioner Douglas. It's really a pleasure to be here, a part of this workshop and this process. And we, at the Air Resources Board, really appreciate the relationship that we have with you in driving forward to a zero-emission transportation system.

I'm Steve Cliff, Deputy Executive Officer at CARB. And I oversee the transportation programs for the Air Board.

Commissioner Monahan, as you noted, this week was very exciting, having this announcement about a new focus on zero-emissions, something that we've longed sought to do. And having the Governor endorse, and even make more aggressive, those targets is really something that's important to us and really will help us focus our work in the coming years.

A lot of focus and attention has been put on the particular of the light-duty transportation system, that is passenger cars and trucks, and moving to 100 percent zero-emission sales by 2035. And, certainly, that's an amazing goal. But I think the additional focus on the medium- and heavy-duty sector and the off-road sort of transportation-related emission sources is a really critical part of this.

And, really, what makes this particular

set of goals unique globally, nobody has set out to do something as aggressive as what Governor Newsom announced this week. So I'm really pleased to be a part of that and, of course, a part of this process.

I just want to say, quickly, you know, from a personal perspective, this hits very close to home for me. The fires this year, 3.6 million acres of forest that have burned up, is an issue that I've kind of faced head-on in very recent times.

Back in 2017, a fire here in Northern California in a rural area where I grew up struck my family's residence. And my parents had to flee during that fire. And, thankfully, they're safe and they made it out safely. But it, you know, burned down my childhood home.

And it sort of really hit home how much climate change affects me personally but, also, the role that transportation had to play. They could flee, only because they had access to a vehicle, and yet the roads for their escape were completely blocked. So they had to kind of wait out in a field that had already burned while their entire life went up in flames around them.

And, you know, I think about that a lot during the fires. And, you know, with the smoke that we've been impacted with recently, all the ash that's affected us here, not just in Northern California but in Southern California, as well, and I think about how much we need to do and how quickly we need to do it. And I just really appreciate the fact that agencies, like CEC and CARB and the Governor, are really focused on this issue and moving forward to make this transition possible.

So I look forward to the discussion today. And again, really appreciate the opportunity to be a part of this.

Thank you.

COMMISSIONER MONAHAN: Great, Steve. Really happy to have you join. And thanks for sharing that story. That was really nice in terms of just like bringing home that we're all impacted on a personal level. This is not just professional.

Well, so now it's time to move on to our panelist discussion. The topic is Approaches to Assessing Funding Program Benefits. The session is going to be moderated by Charles Smith, who is one of our most hardworking employees at the Energy Commission. He's the Manager of the Commission's Transportation Policy and Analysis Office, which is responsible for the Clean Transportation Program Annual Investment Plan that sets our investments out. And we, for the first time, have been looking at a three-and-a-half year investment plan that, basically, takes it out to the end of the program's statutory life.

So, Charles, I welcome you to join the dais.

MR. SMITH: All right. Thank you, Commissioner Monahan. I am Charles Smith, Office Manager for the Transportation Policy and Analysis Office in the CEC's Fuels and Transportation Division. This division is primarily responsible for administering the Clean Transportation Program -- Funding Program that dedicates approximately $100 million per year for the projects that advance the state's goals of decarbonizing and detoxifying the transportation sector. And as part of that program, our office, in addition to the investment plan, prepares the Biennial Benefits Report for that program.

And today, I am very excited to have a fantastic panel of speakers who can help us continue to improve our tracking, assessment, and reporting on the Clean Transportation Program's benefits. I will start with a brief presentation from each of our speakers. And that will be followed by questions from our virtual dais, Steve Cliff, Commissioner Monahan, Commissioner Douglas. And after that, I'll guide the panel in a brief discussion period, and I'll take some questions from our virtual audience.

Our first speaker today is Susan Ejlalmaneshan. Susan is an Air Pollution Specialists at the California Energy Commission and has been with this agency since 2014. With the Fuels and Transportation Division, Susan leads the Clean Transportation Program's Biennial Benefits Report efforts. She received her master's degree in Transportation Technology and Policy from UC Davis, and her bachelor's degree in Economics from Iran (phonetic).

So, Susan, the virtual floor is yours.

MS. EJLALMANESHAN: Thank you, Charles.

Good afternoon everyone. I am Susan Ejlalmaneshan with the Fuels and Transportation

Division. Today, I will be summarizing the approach we have necessarily taken in preparing the Clean Transportation Program Biennial Benefits Report, as well as identifying known areas that we would like to improve on.

Next slide.

Transportation sector is the largest source of greenhouse gas emissions in California. When you combine local emissions with other petroleum extraction and refining, it is roughly 50 percent of in-state emissions.

To meet the goals set in state policy, the state transportation sector will need to transition to low- and zero-carbon fuels and technologies.

This slide captures some of the key policies guiding our implementation of the Clean Transportation Program. Our statute calls on us to provide preference to projects that maximize these and other goals.

According to the brand new Executive Order N-79-20, all sales of new passenger cars and trucks by 2035 must be ZEVs, all medium-duty and heavy-duty fleet transportation be ZEV by 2045, and California Energy Commission must update its charging infrastructure assessment to support these higher levels of EVs.

Next please.

The Clean Transportation Program originated from Assembly Bill 118 in 2007 and provides up to $100 million per fiscal year to help advance state climate change policy. The primary part of the program, as captured here, is to develop and deploy innovative technologies that transform California fuel and vehicle types to help attain the state's climate City of Huntington Beach policy.

It is important to note Clean Transportation Program does not operate in a vacuum. Instead, our programs are forced to complement statewide efforts to decarbonize the transportation sector. This includes coordinating with a number of different agencies and programs, including ZEV regulations, utility investments, Low Carbon Fuel Standard, Cap-and-Trade/GHG Reduction Fund, settle agreements, air quality improvement programs, utility investments into charging infrastructure, and legal settlements that support ZEV and ZEV infrastructure.

Next slide please.

We are now in close fiscal year of the program, Fiscal Year 2020-2021. On the left is a listing of where we have invested approximately $865 million in program funding through December 2019. As you can see, our funding portfolio today has included nearly a dozen major project types, plus many other smaller types not listed here.

Looking ahead on the right, we'll continue to refine our proposed investment to reflect the state's long-term goals for carbon neutrality and fuel emission technologies.

For our in-progress Investment Plan coverage 2020-2023, we are making a significant commitment to being the state's lead agency for ZEV infrastructure in terms of both light-duty and heavy-duty applications, as well as both charging infrastructure and hydrogen refueling infrastructure.

Next slide please.

Our statute requires the Energy Commission to include an evaluation of the Clean Transportation Program efforts as part of each biennial Integrated Energy Policy Report, with the next version coming with the 2021 IEPR. Applicable to today's discussion, these evaluations identifying the expected benefits from the funded project, as well as their overall contributions for transition to clean alternative transportation fuels.

Over the past seven years, the Energy Commission partnered with the National Renewable Energy Laboratory, NREL, to develop a quantifiable estimate of petroleum fuels use reduction, air quality benefits, and GHG emissions reductions associated with the Clean Transportation Program projects.

Next slide please.

To estimate the benefit from the Clean Transportation Program projects, two metrics were applied, expected benefits and market transformation benefits. Expected benefits represent the outcomes directly supported by true transportation program funding. These benefits assume a one-to-one substitution of conventional petroleum fuels with an alternative fuel and/or improved vehicle efficiency. The amount of gasoline or diesel displaced multiplied by the carbon intensity ratio of the new alternative fuel against gasoline or diesel, results in an estimate of greenhouse gas reductions.

And the expected benefits most important key takeaways include: addresses most direct, near-term impact on the project; relatively straightforward to calculate; highly variable based on usage assumptions; and does not account for funding or regulatory context.

Next slide please.

Unlike expected benefits, market transformation benefits represent estimates of how Clean Transportation Program funding might indirectly influence the expansion of alternative fuel production and use in the future. Because the market transformation benefits analysis relies on future market conditions and decisions in a way that the expected benefits analysis does not, two sets of assumptions were used to generate a low case and high case. In general, the low case makes more conservative assumptions about demand elasticity for ZEVS, savings from economy of scale, and the ability of successful demonstration projects to leverage private interests for large commercial-scale projects – while the high case reflects the opposite.

Market transformation benefits key takeaways include: incorporate broader assumptions about technology development and market response; not exhaustive, projects may instigate market transformation in unexplored ways; and, similarly, does not account for funding or regulatory context.

Next please.

NREL has identified three potential ways that transportation program projects can influence market transformation. These potential influences are described in this table. There may be other ways that Clean Transportation Program projects influence the market -- future market growth of clean fuels and vehicles. However, there are -- these are examples NREL has found to be the most readily quantifiable.

Next please.

Recognizing the limits of what public funding can do can lead to a transition more towards private funding to reach fuller scale and looking at long-term 2045 Carbon Neutrality and Fuel Emission Requirements, here are some thoughts for future benefits reports.

Number one, how can we assess and convey the Clean Transportation Program's ZEV infrastructure contribution to the state's goal of 5 million ZEVs by 230 and carbon neutrality by 2045?

Number two, how can or should we identify project benefits that are uniquely attributable to the Clean Transportation Program rather than funding or regulatory partners?

Number three, how can we further assist and convey market transformation benefits?

Number four, how can we assess and convey the non-quantifiable investments of the Clean Transportation Program?

And number five, how can we further measure and ensure benefits to all Californians, including those in low-income and disadvantaged communities?

Thank you for your consideration.

MR. SMITH: All right. Thank you, Susan.

MS. EJLALMANESHAN: Sure.

MR. SMITH: Our second speaker today is Kersey Manliclic. Kersey works as an Air Pollution Specialist in the Mobile Source Control Division at the California Air Resources Board. His primary tasks involve implementing CARB's Ag

Equipment Incentive Program, or FARMER, as well as performing GHG and criteria pollutant emission reduction quantification for their Low Carbon Transportation Incentive Programs.

Kersey, take it away.

MR. MANLICLIC: All right. Thanks Charles. I hope everyone can hear me okay. I also just -- good afternoon. And I just want to express a humble thank you to the CEC and, in particular, their Staff for the invitation to participate in this panel.

So what I'm going to share is a little bit about how CARB quantifies tracks and reports on the benefits achieved from our various Transportation Incentive Programs.

So next slide please.

So it's important to note that our Low Carbon Transportation Incentives, which include the popular Clean Vehicle Rebate Program, our Truck and Bus Voucher Program, our Mobility Programs, and several others are all really part of CARB's much larger portfolio of incentives. These include the Carl Moyer Program, which focuses on heavy-duty on-road and off-road equipment, our Ag Equipment Incentive Program, known as FARMER, and our Goods Movement Incentive Programs, and so forth.

Next.

And so the assessment methods that we use for our low-carbon transportation incentives will be what I focus on today.

Next slide please.

So I think it does without saying that there are priorities that guide the use of the Greenhouse Reduction Fund funds generated from Cap and Trade.

Next.

Of course, reducing greenhouse gas emissions is at the forefront.

Next.

But so is ensuring meaningful and direct benefits to priority populations.

Next.

As well as balancing and maximizing co-benefits, you know, a myriad of health, economic, and environmental goals.

Next.

And, of course, job and workforce training.

Next.

So that being said, I'd even say, inherently, there is a need for some sort of metrics and a way to track our progress on meeting these goals.

Next slide please.

So the first of four methods that I'll cover is our greenhouse gas quantification method. Really, at its heart, it's actually quite fundamentally simple. We know the types of vehicle classes and fuel types of a particular vehicle that could be funded. And then using a variety of sources, such as our emission factor model, our regulations, our various inventories, the GREET model, and so forth.

Next. Next please.

Then we're able to get a carbon intensity and fuel economy for those types of vehicles.

Next please.

And then, ta-da, we then have a well-to-wheels greenhouse gas emission factor for the vehicles that we would like to fund.

You know, regarding alternative fuel vehicles, in our methods, we account for any efficiency gains.

And then I will say, whenever we do an

estimate of sorts, we always -- it's always the difference between a baseline vehicle or what someone would conventionally purchase, and then that's compared to the new alternative.

And I'll also just say that we use our quantification methods at multiple times. For example, we will use these methods to do an estimate of the reductions that could be achieved when we do our funding plan. And then once the vehicles have, you know, been funded, once vouchers have gone out, and once we can actually see the types of vehicles that have been deployed, we'll revisit those calculations and such.

So next slide please.

Okay, regarding criteria pollutant emissions, we used several vehicle parameters, whether that be model year, calendar year, the type of fuel the vehicle that the vehicle uses.

Next please.

And then we go to our emission factor model.

Next please.

And then that gets us just a simple grams-per-mile emission factor. So we can see, you know, the savings in the reductions in NOx, ROG, and particulate matter that could be achieved.

I will mention, more recently there has been an added focus on co-benefits, for example, the dollars saved on fuel when you switch to a technology. These co-benefits are a function of, you know, the reduction in fuel consumption that can be achieved.

And so what's able -- what's really happening then is we're able to get just a little more insight. We're able to take things one step further and see those co-benefits with just minimal to zero new administrative burden in our quantification methods.

Next slide please.

So the checkmark we're, currently on slide 16.

And so with respect to jobs modeling, CARB worked with UC Berkeley to develop this jobs co-benefit model. It all uses publicly-available data. And the job model is quite simple to use for us, Staff, and for the general public. We look at, for example, the dollars that have been allocated to a particular project or a program.

Next please.

And then, you know, we know the dollar amount. Then we look at the three sectors that could be impacted by that particular, you know, funding amount given to that program, so whether that be, you know, equipment, materials, and admin dollars. And then that information gets run through this, you know, a set of multipliers.

Next please.

And then we are then able to get a number estimate of direct, indirect, as well as induced jobs.

And then I just want to bring it back full circle. So this is kind of a frontend estimate that we'll do. But, also, you know, when the program and the projects get implemented, we also collect data on real jobs. So, for example, we track, you know, we'll collect info on the wages, the number of staff, the education and training background, you know, of our grantees, of the Admin jobs, of the air districts that we work with. And so that's kind of given us an opportunity to look at real data and see how well that matches up with our modeled data.

Next slide please.

So now we are on slide 19. And the last method I want to talk about is our three-step approach to assessing and trying to ensure direct and meaningful benefits to priority populations.

Next please.

So the first step is to look at, well, where do the vouchers, where do the incentives, where does the equipment, where did the mobility project and such, where did that occur or what communities did they take place in? You know, what's their location?

Next please.

Then the second step for us is, you know, looking at, well, how? You know, was it -- it a community need determined? How is a community need, you know, addressed, be it a grantee or an air district or a transit agency or a state agency? Did they host workshops? Did they get letters of support for a particular project type? You know, are we making strides towards one of the factors highlighted by CalEnviroScreen?

Next.

And then the third step is, well, what are the benefits being brought by the funding, by the project? Is it increased mobility? Is it fuel savings? Is it, you know, improved air quality? Is it a combination of those things?

I think compared to the first three methods that I showed, if you see this, you kind of realize these methods are -- this one, in particular, is a little bit inherently qualitative.

I will add that I've seen some agencies try to make a pseudo-quantitative approach to this. But it's a bit challenging because, you know, projects don't necessarily compare apples to apples. You know, one project might have one benefit, another might have two. But, you know, it's important to account for, you know, what a particular community, what benefits do they value? And some may value a particular, you know, benefit more than others. And so you can't necessarily take the sum of these benefits. But this gives us an administrative path forward for tracking these.

Next slide please.

Okay, so now we are on slide 23. And I'm going to king of shift gears and talk a little bit about, you know, how we've been tracking market transformation. And so I'm going to share the example of the Clean Vehicle Rebate Program, CVRP.

You'll see in this map, ten years ago we were -- we had funded about 100 vehicles.

Next please.

Within four years, we were almost to 100,000 vehicles.

Next please.

And in 2018, we were at over 300,000 vehicles.

And so I think what I'd like to convey from this slide is as you move from left to right you can fully see how the, you know, the vehicle technologies spread out and permeate throughout the state. Moreover, it's this type of information that helps us identify, you know, potentially identify secondary markets or areas that, you know, might need more outreach regarding our programs.

Next slide please. We're on slide 26.

And this is a second example that I'll share from our Clean Truck and Bus Voucher Program, known as HVIP.

Next. Next.

And so, you know, similar to what I -- the previous slides, here we can track the same similar type of spatial and temporal growth. Ten years ago we were at 600 vehicles. And over time, you know, over a decade, we are now reaching new geographic areas and we're at 8,000 vehicles.

Next slide please.

And so, you know, just speaking more generally, what we've seen is more OEMs and different types of vehicle models come to the table since the start of these incentives.

Next please. Next. Oh, okay.

So, you know, in the beginning of our incentive programs we saw, you know, just hybrids, but now we're seeing more applicants pursuing ZEVs with these incentives.

Next please.

I will share that, anecdotally, for our Ag Incentive Program, you know, we've heard about, you know, equipment manufacturers say that they've expanded their workforce because they have, you know, hundreds of electric new EV orders, which, you know, again are a direct result of incentives.

And next please.

And we are also tracking, you know, the dollars of incentives and how they are inducing dollars of private investment.

Next please.

And so, finally, you know, I just want to share that, you know, we don't just want to put out a textual memo with data. You know, we want knowledge of these projects, you know, benefits and incentives to be transparent, accessible, and really digestible for, you know, for all of us, for, you know, and for the general public.

So every year we report to, for example, every year we report to the legislature on projects funded with the greenhouse gas reduction fund.

Next please.

You know, we highlight projects and project profiles.

Next please.

You can find infographics at, you know, the problematic -- at, you know, at the programmatic level.

Next please.

You know, and there's been a huge focus

and strive to make, you know, these data available online. And there's as best of a user-friendly format as possible. You know, folks can see our online map. They can see where the projects are located. You know, we've got data dashboards. You know, we're working on it. We're trying to make this information, you know, in a nice format and more hip.

And so next slide please.

So with that, I just absolutely want to thank the CEC and their Commissioners. I want to thank the public for all of your attention. And I just want to say that the slides you've seen really represent the work of 50-plus staff and managers at CARB. And I want to extend an acknowledgment to my CARB colleagues.

And with that, you know, thank you. I'm looking forward to the discussion.

MR. SMITH: All right. Thank you very much, Kersey.

Our next speaker is Anthony Ng. Anthony is the Supervisor of the Tech-to-Market Unit at the California Energy Commission's Research and Development Division. There, he coordinates a suite of projects and programs aimed at supporting California's clean energy entrepreneurs bringing their innovations to market. Anthony also leads the benefit assessment efforts for the Division where he helps develop and implement methodologies for assessing the impact of R&D investments.

Anthony, when you're ready.

MR. NG: Great. Thank you so much, Charles. And thank you very much to the IEPR Team for inviting me to speak today and present a little bit about how R&D thinks about benefits assessment to -- with regards to our programs.

So next slide please.

So just starting off with a little bit of context for those who might not be familiar, so within the Energy Commission's R&D Division, we administer several programs with the overall goal of, you know, funding investments to promote the commercialization of new clean energy technologies to help address, you know, California's ambitious climate and energy goals.

The single largest program is the Electric Program Investment Charge, also known as known as EPIC, as you see there, about $133 million annually in funding that we provide. And the rest of the presentation I'll be kind of going over is largely in context of the EPIC Program. But the overall framework can be applied to the other programs that we administer within the R&D Division.

So the core idea that I wanted to talk about in my presentation today is the idea that different, you know, different methodologies, different benefits, and different metrics are important, depending on the level that you're -- that we're looking at; right?

For a program such as EPIC that we fund, technologies and different scales of technology is really broad. And so it's, depending on the level that you're doing your analysis at, it's important to kind of pick and choose which metrics are appropriate at the different levels.

So next slide please.

So starting off at the highest level is, you know, the EPIC Program as a whole; right? So when we're looking at this level, we want to see what are, again, what are appropriate metrics and what are appropriate quantifications that we can see that can speak to the program as a whole?

And so, you know, in a process of

continuing improvement, you know, we kind of settled on these four broad categories that we feel do a good job of speaking to the performance of the program as a whole.

So first is technology advancement and commercialization; right? So this is a overall goal of our investment programs, is that we are trying to get technologies advanced, you know, through the kind of innovation scale.

You know, if you're at an early stage, we want to get technologies, you know, more developed, more advanced, closer to commercialization. If you're at a little bit later stage, we want to help to try to find customers and demonstration sites, and other interventions that could help you get closer to actually deploying your technology I the real world because that's the impacts are ultimately made.

And so, you know, some examples of some metrics are, you know, follow-on funding; right? We feel that this is an incredibly powerful signal that what the CEC has made an investment have other parties, especially from the private sector, picked up and continue to support technologies and innovations that we have because, again, that's a really strong signal that there's customers interested, that there's investors interested, and that there's a good likelihood that these technologies can make it out into market and start making an impact.

So moving on, our second broad category is technology diffusion. And this, you know, speaks to the idea that not just the idea of getting technologies into the market and installed at sites, but also that there's a vast amount of lessons learned that happens in the course of research. And those are kind of the broad category to try to capture that idea; right?

How do the lessons learned from, say, a large-scale demonstration project benefit beyond the actual energy savings from a technology but, you know, the installers get better at installing the technology, they learn lessons about how to plan and permit and interconnect these technologies; right? So these are some examples of how those benefits are captured.

Knowledge generation and dissemination of the significant portion of the EPIC portfolio.

It doesn't necessarily deal with technology advancements but they deal more with scientific advancements and environmental studies to help, you know, facilitate deployment, a greater deployment of technologies. And so these aren't necessarily -- you know, the technology metrics aren't necessarily appropriate but then it's still important to try to quantify how prevalent the knowledge that we're funding gets disseminated throughout the kind of scientific community.

And then, of course, you know, diversity and equity. You know, the R&D Division shares the commitment to ensuring that the benefits of our investments are, you know, felt by all Californians. And so, you know, the EPIC Program has statutory goals of, you know, committing certain percentages of our funding to low-income and disadvantaged communities. But we also want to ensure that, you know, we're not just meeting the minimum there, that we're really keeping these communities in mind as a core tenant of our funding.

And so on the right there, you can see just some examples of the results between the various categories that we've been able to collect over time. And I think it paints a good picture of, again, you know, the EPIC Program as a whole.

But I'm sure you'll notice is that one thing that isn't really mentioned here is anything to do with any specific technology or energy savings; right? Which I think is a natural area that you think of when you think about R&D for clean energy. And, again, that's speaks to the fact that because EPIC is so broad that, at least at the program level, you know, it doesn't necessarily make a lot of sense to us to get specific kind of technology or energy savings metrics, you know, at this level.

So next slide please.

So moving down one level, though, this is where we start to talk about the specific technologies that we're actually funding. And so we call this the portfolio level of analysis as opposed to the program level which I just talked about. And so as, you know, we can look across the entire set of projects that EPIC funds and we can start to characterize the different projects into different technology areas and kind of expected benefits that we can expect, given the type of technology and the scale of the intervention.

So the Building Energy Efficiency Portfolio is a good example because, you know, we fund a lot of advanced HVAC, lighting and controls, building envelopes, you know, penetration, things like that. And although the technologies are fairly different the expected benefits are fairly consistent across that portfolio of technologies. So it's an example of the way we think about how to group our different projects.

And given the grouping, we can then apply the results that the projects have demonstrated into a translation, into, you know, for example, kilowatt hour savings at a site into dollar savings at the site. And then we can, you know, use various tools and models and methodologies to try to project, you know, anticipated benefits at different up-tick scales.

And so, you know, we divide these benefits into direct benefits that we would expect from a technology adopter, so things like on-bill savings, level X (phonetic) cost of energy, load shifting, peak load, attention there. But also indirect benefits too; right? So, you know, with the example of if a single building adopts a new HVAC technology the building, the site, is expected to, you know, receive benefits from lower energy bills.

But broadly speaking, and especially when we're talking about projections of scaled-up technology, we can assume that there are also indirect benefits from king of reduced load, reduced generation, reduced losses from transmission and distribution based on load reductions; right? And so these are other examples of indirect benefits that we can also ascribe to our portfolio. And I gave a couple of examples to the screen there.

Next slide.

And then taking it one level even lower, this is our individual project level. So at each project that we fund, we implement a questionnaire, you know, that we administer, both to the beginning and at the end of the project. And this really gets at the really nitty-gritty of what the project is trying to accomplish; right? And, again, this is going to be really different depending on the type of technologies. But this is an opportunity to identify specific technical targets or specific price points, or maybe specific customers that a given project is trying to reach; right?

And so these are ways that we can collect the data from the project. And then they feed into the higher level analysis at the portfolio; right? These tools allocations us some level of aggregation, depending on the types of projects.

Next slide.

And then so the kind of final idea I wanted to leave with is the idea that this type of analysis is super important -- right? -- not only as just a means of retrospective analysis; you know? We invest a significant amount of ratepayer funds. And, obviously, we want to demonstrate that ratepayers are receiving benefits from these investments.

But just as important is that these, the results of this analysis and the results of this work, can also help really inform future investment decisions; right? As we get better at tracking and doing this analysis, it can really help us show, you know, certain areas of technology performance that are really excelling that might be worthy of continued funding, or certain areas that are really taking off in the private sector that maybe is mature enough that, you know, government intervention might no longer be necessary, just kind of hypothetical examples. But, you know, we really like to think of this idea that benefits work and benefits analysis can help inform future decision.

And then the last point there on the screen is the idea that these three levels are really interconnected, and so it starts at the project level, the individual project level. But the data collection and the analysis we do there can feed into the portfolio level. And then, you know, that, and certain elements there, can feed into the program level as a whole.

So that concludes my presentation, so thank you for the opportunity.

MR. SMITH: Well, all right. Thank you, Anthony, for bringing that to us.

Next up we have Gia Vacin. Gia is the Assistant Deputy Director of Zero-Emission Vehicle Market Development at the Governor's Office of Business and Economic Development, the

GO-Biz. She focuses on accelerating the deployment of ZEV infrastructure in pursuit of California's brand new goal of 100 new passenger car and truck sales being ZEVs by 2035 and medium- and heavy-duty fleets by 2045. Her role is to coordinate state efforts and collaborate with public and private partners to identify and advance opportunities to achieve market scale. She holds a Master of Environmental Science and Management Degree from the Bren School at UC Santa Barbara, and Bachelor of Arts' Degrees in Biology and Environmental Studies from UC Santa Cruz.

Gia, please go ahead.

MS. VACIN: Okay. Thank you, Charles.

Good afternoon everyone.

Next slide please.

So, indeed, it is important to measure the impact of California's program investments in helping to achieve our goals. And my fellow panelists today have shared some great information in the diligence that goes into doing this.

Next slide.

And benefits are also difficult to fully capture.

Next slide. Oh, back one, please. Yeah.

So, for example, did the Clean Transportation Program enable the EVgo-G.M. announcement from last month that will triple EVgo's fast charging network in the next five years? I believe the answer is, yes. Why? Because EVgo, in large part, built its growth strategy around CEC's CALeVIP which opened the door for large private investment to come in.

So the question that follows is: You know, how do we measure this? How do we measure the kinds of ancillary benefits? And it's important to be thoughtful about what we measure and how. And I'd say that part of doing this well is thinking about the larger outcomes that we're trying to achieve. And so in typical GO-Biz fashion, if you're familiar with our unit, we'll take a step back.

And next slide please.

You know, what we're really trying to do with clean transportation is get to scale.

Next slide.

So driving the scale of T (phonetic) because this is where the significant environmental and social and economic benefits really emerge. Because, ultimately, what we're trying to do is improve people's lives.

So the main tool to accomplish our ambitious state goals is not, you know, long-term government incentives; right? It's private investment that's the real tool. And, of course, the state plays a crucial role in this to, again, help catalyze markets and provide and create positive feedback loops. And if we can create these kind of conditions for a healthy market that can attract private investment, which will drive scale, which in turn brings greater market health and so forth.

So turning back to the question about how to best affect program funding benefits, I think this is a challenge at the programmatic level for sure. And we've gotten -- you know, we've heard of some really skilled ways in teasing this out, you know? And I'd argue that even when the metrics seem pretty straightforward, we're still missing part of the picture.

Next slide.

So don't let your eyes cross here on this one. GO-Biz did some mapping of the landscape for clean transportation funding in the state. And we won't get into the details here but I wanted to include it just to illustrate that we are a system, and a complex system of agencies and programs and targets which, perhaps, makes it even harder to attribute the full benefits to any kind of single element. So it's really about the impact of the whole system.

And I'll just pause for a second and say that happy to share more information here. We have a pretty cool program that shows the connection between the agencies and the various programs and sort of targets the different funding sources they're looking to achieve. So, you know, happy to go into more detail another time for anybody who wants to know more.

And, of course, there's still value in trying to attribute, you know, the impact of specific programs for assessing and reassessing, for refining and improving, you know, as we learn.

Next slide.

And here, of course, the CEC's Clean Transportation Program is the one at the top with the arrow, is part of this biggest system. And, you know, when that program launched, I think it really was kind of, in terms of infrastructure, the center of the universe. And now it's still, of course, a very important part but part of this kind of growing system and evolution of the ZEV market and clean transportation market. And this is a good thing; right? This is the point. And this is what we want to see for reaching scale.

And, certainly, there are cases where we can point to direct benefits. So earlier I mentioned CALeVIP, whose investments are really addressing actual gaps in the market. And measuring specific benefits there, it may be pretty easy, but a DC fast charger project doesn't just enable greenhouse gas reductions from cars that charge there; right? It enables the cars and the chargers that follow in all of those.

Next slide please.

We had an executive fellow this past year who did some great work pulling together charging infrastructure investments over time, and you can see the results here. So just to point out, again, we won't go into, necessarily, details here, but total investment is growing. And the number of types of investment sources has grown over time. And so, you know, what exact proportion of this would do to CEC's programs is maybe hard to tease out. I think it's the light purple with the match requirement there. But, you know, the point is that these positive trends are what we want to be seeing.

And so next slide please.

I'll talk for a minute about the Hydrogen Program, where I actually spend a lot of my time. And I think this is a great example where we actually can draw a pretty bright line where the Clean Transportation Program and the Low Carbon Fuel Standard Capacity Credits are really kind of the only funding sources, outside of private investment, for this, in this case, light-duty infrastructure.

So as far as the Clean Transportation Program, we knew that investment was waiting on the sidelines for the last year, though, to come out with GFO 19602 the NOPA was just announced a couple of weeks ago. And the response that came back was exactly what we're talking about in terms of catalyzing investment. So compared to just a few years ago, stations are as much as eight times larger in capacity. And station costs have dropped 40 percent.

Also, in 2016, when the last GFO came out, the money came out, the state put up 70 percent of the capital costs and now that's split and the private sector is paying 70 percent. So this is where we really start to see a flicker of scale.

So I think what we're really doing is investing in confidence; right? The correct question here is: Are these investments building market confidence? And, secondly, are they creating, you know, new opportunities that haven't been considered before? And there are many opportunities in this space.

So, for example, we're just kind of at the precipice of what we can do with vehicle-to-grid integration. And we're just starting to scratch the surface of what we can do with hydrogen as an energy system backbone.

So, again, you know, we should be thinking about our investments in the system and not only in kind of our programs or are projects. And, by the way, systems can be even harder to measure, so there is that.

Next slide please.

One thing that GO-Biz has been doing is thinking about how we can organize the system to enable this complex set of actors, both public and private, to work together more effectively and increase our collective impact. So we're leading the development of the ZEV Market Development Strategy, which was just formalized in Governor Newsom's ZEV Executive Order from Wednesday. And it's really intended to help organize the system, break down silos, improve transparency. It's intended to combine a common kind of songbook to build on the momentum of the individual programs in achieving these statewide outcomes. And I'll just quickly run through kind of the thinking here and the numbers on the side.

And kind of the strategy can kind of be summarized in five elements, so we want to articulate that entertain our collective actions, clearly identify our targets, establish the rules and objectives of each agency and major stakeholder group in meeting those targets, four is to organize collective problem-solving on core issues, and lastly to ensure that lessons learned are equally accessible so that we can replicate successes and avoid future failures.

And the idea is really for agency leadership and staff and external stakeholders to be positioned and empowered to meet, and even exceed, high expectations.

So next slide please.

And I'll say, if any of you know, I've borrowed for these last couple of slides from Tyson who is -- he's the Deputy Director of our unit at GO-Biz and is very fond of hand-drawn slides. So, you know, it's kind of fun and different.

The last slide here is getting back to what and how we measure our progress. So the metrics in the Zero -Emission Vehicle Market Development Strategy will focus on positive trends in these areas. And it will be about measuring the system, not just the individual programs.

So, of course, it's the individual elements that create the whole. So we'll continue to capture these individual benefits and the ways in which, you know, many of, again, my fellow panelists have been describing. And our hope is that this strategy will help enable a system where one plus one equals three.

Next slide.

So, thank you.

MR. SMITH: Thank you, Gia.

Our final speaker in this panel is Andres Ramirez. Andres is Policy Director for Pacoima Beautiful, an environmental justice organization based in the northeast San Fernando Valley area of L.A. He has over 15 years of experience of championing equity and racial justice in disadvantaged communities throughout the L.A. area. He currently sits on the Disadvantaged Communities Advisory Group for the California Public Utilities Commission and Energy Commission, as well as the Solar on Multifamily Affordable Housing Advisory Council.

Andres, please go ahead.

MR. RAMIREZ: Thank you, Charles.

So as Charles said, I'm here on behalf of Pacoima Beautiful. We are an environmental justice organization based in northeast San Fernando Valley. Our mission is to educate, organize, and advocate in order to promote a healthy, sustainable, and thriving frontline community.

One of the things that I want to talk about today is the intersectional nature of equity in disadvantaged communities. It's very important that we understand that, you know, issues that are impacting disadvantaged communities do not happen just in silos. And our solutions can't work in that way either; right? And I think it's a difficult scenario but it's real.

The issues in our communities include transportation, include, you know, the need to lower greenhouse gas emissions. But it also has been impacted in terms of housing or lack thereof of affordable housing. And another issue could be jobs. And the list goes on and on; right?

And for that reason, a wide method is necessary to ensure that all perspectives of our communities are considered when introducing programs, like Clean Energy Program, which are very much needed. Not to say that these programs can't be effective or not needed. But I think the perspective needs to really start changing.

Next slide please.

So we've been asked quite a bit -- right? -- you know, how can we make these kind of clean transportation programs more effective in disadvantaged communities? And I appreciate all the previous presentations. You know, it's showing the impact that it has had across the state. However, that impact is not being seen on the ground on the communities that need it most.

So one question, I think, that needs to be asked is: You know, are the projects that are being submitted, are the projects that are being funded, are they fitting the needs of the communities that are supposed to be impacted? And like you said, it's intersectional, the nature of the work that's needed for our community and, you know, introducing a project around zero-emission vehicles and then reaching the communities that actually need it; right? What are the challenges that project is facing?

Our community partnership is really being established to ensure the sustainability and success of a project. And this is -- I can't emphasize this enough; right? It's important that community engagement is not jut seen as a box to be checked but is actually, truly, a partnership of trying to build projects that have community input from inception to implementation.

It's a challenging process but I think it's a very necessary one for the sustainable success of a program. The communities are the best experts of what's needed in their communities.

And that's another part of this; right? I think, you know, we've got to understand the diversity of our state; right? You know, it's can't be a cookie-cutter solution.

And the other point I did want to make is, you know, another thing we need to take into account with, you know, the challenges for transportation programs is does it fit the intersectional nature of equity in a DAC; right? Does this project impact housing? Does this project impact jobs?

I saw the chart of how jobs -- the formula utilized to assess how jobs are being impacted by these programs. But, unfortunately, we're not seeing those jobs correlate to economic development in the communities that need them -- right? -- in the DACs. I think it's important that we start thinking about not only the fact that, you know, these communities are top factors there when it comes to CalEnviroScreen, but how are we improving their CalEnviroScreen scores? Are emissions actually being lowered? Are the impacts on the health, housing, and jobs really being impacted, and really having accountability towards that?

Next slide please.

So like I said, in terms of recommendations, one, I think, it's important that we recognize and embrace the geographic diversity of our state; right? The solutions in urban areas are going to be much different than solutions in rural areas. And even in urban areas, large cities, like San Francisco and Los Angeles, are going to have very different solutions based on the geography of the city; right?

The solutions, for example, in Los Angeles, you know, the issues and topics that are impacting the valley communities are very different from the issues that are impacting those cities that are close to the ports. And we have to be aware of that and be -- create -- and, also, creativity and innovation. That's going to -- that's a must to help these programs really succeed.

Where are the prioritized projects that have pure partnerships among agency and CBOs or groups that are tight on the ground? And I can't emphasize this enough, you know, it's more than just people that say they're going to have meetings with the communities and work with X and Y organizations, but truly saying we're partnering with these organizations to help create a vision that we want to see implemented. That's something that we see as being more successful than -- you know, and I could speak on it from personal experience; right?

Being called in on the eleventh hour helped us turn out people for a meeting and we did our meeting and we move on with the rest of the project. That leaves a lot of questions. That leaves a lot to be desired -- right? -- when it comes to a project. And, ultimately, a lot of those projects don't find success. We don't see the fruition to the vision that people are having. Partnerships are very important; right?

And that also means opening the funding to these partnerships, and not just prioritize business as usual. And I think that's the part that we've got to start really opening our minds to -- right? -- is, you know, business how its always been hasn't been effective when it comes to this goal of creating equity and this goal of, you know, improving the lives of disadvantaged communities.

And then, lastly, evaluate with clear metrics of the impact of the projects being built. You know, accountability is a very big thing right now, especially in the climate that we live in, in this country and in this world; right? And it's very important that our state really provides the golden standard of that, you know, transparency and accountability to the communities that we serve; right? Are we accomplishing the goals that we originally committed? Or are we trying to paint it in the nicest light possible?

And, unfortunately, I've got to say, sitting on some of these advisory groups, I feel like, you know, that's what tends to happen; right? I mean, and I get it, Staff wants to paint things in the best light possible. But we need truth; right? We need accountability in saying these are the mistakes that we made and this is how we're going to improve on them, or these are things that didn't work and this is our recommendation for how to get them better. That's the only way we're going to improve these kind of projects.

You know, just trying to show us, I guess, yeah-yeah, we did a little bit more than we had in the last year, it's just not good enough. You know, at the end of the day, and for someone who is working on the ground in these communities, you know, this is a life-or-death question; right? We're breathing the toxic air that we're hearing -- are seeing graphs about. We're seeing people die in our communities from all these impacts.

And, you know, when a pandemic, like COVID, has come to our community, you see the unsurprising consequence of that; right? These same communities, these so-called disadvantaged communities, are also the communities that have the highest rates of deaths from this pandemic. There is a correlation there. And we have to do our part to help, to help improve that.

I do want to share, like there are examples of doing that. And I can't emphasize enough -- right? -- allow for innovation, allow for thinking outside the box.

The picture I'm showing here is a project that we're running with Envoy car sharing. And -- what's it called? Oh, we're piloting an electric vehicle car share in the middle of a public housing project, because that's another piece that I did want to emphasize -- right? -- that we have to overcome, that we have to start challenging from grantees.

You know, people have a bad -- our communities, unfortunately, get a bad reputation that leads -- strays away people from investing in our communities, is that you have that, you shouldn't invest in a poor community because folks are going to just, you know, steal what's there or not value what's there, but that's no the truth. Honestly, that comes from a really racist mentality. Communities of color needs to be invested in. That's the true essence of equity. You start with the communities haven't been invested in to help try to solve the years of disinvestment that has occurred and, you know, really start balancing it out for the greater good of the whole state.

Thank you for having me on this important panel. And we do want to see this happen. It's important for our community. And I look forward to the discussion that's about it.

Thank you.

MR. SMITH: Wonderful. Thank you, Andres.

I think at this point, we move to the -- any questions from our virtual dais.

COMMISSIONER MONAHAN: Yes. So I have a couple comments and some questions. And I would actually love it if Steve Cliff and Commissioner Douglas joined, because I'm hoping we can have a discussion among the virtual dais as well.

This is, to me, a really important panel. And the reason I say it's a really important panel is because we want to make sure that we're using our dollars strategically and measuring. You know, there are certain things that are super easy to measure, and so that's the default; right? Is the grant located in a disadvantaged or low-income community? We can count that. What are the tons associated with putting out, say, a low-carbon -- one of the low-carbon diesel for a low-carbon fuel, we can count those tons?

It gets much harder, as Gia was pointing out, and others, when we're talking about investing in changing infrastructure or investing in hydrogen infrastructure. Suddenly, it's like, well, I don't know how to calculate the tons from that. That gets really difficult. So now we start looking at market transformation and other metrics.

And I've got to say, you know, I've been involved in this world for -- in this transportation world for a long time. We're always thinking in terms of dollars per ton. You know, how much does it cost to get an emission reduction? And in that world, you always focus on efficiency. It's super easy to measure, usually pretty cheap. And so, you know, on that dollar invested per ton outcome, you get some good data. But once you start moving to zero-emission vehicles, actually, the tons get kind of small. So it's only when you have a complete transformation that you start having a real difference.

And in terms of the dollars invested, it's a little more expensive in these early technologies. That's changing, I would say, over time.

But -- and so this question about having to make sure that we are quantifying benefits in a way that really is under a set that apply to a community and we're making investments that communities actually want and value, that, again, the metrics get super challenging. And yet, that is, indeed, where we need to go.

So I think, you know, especially as it's become clear that the Air Resources Board is focusing on the vehicle side, the CEC is focusing on the fuels and infrastructure side, you know, a partnership, in particular with ARB, around how we're valuing infrastructure and vehicles to make sure that we're doing it in a way that's comprehensive and that really helps the state achieve its goals for long-term decarbonization of the economy.

So that's the background.

I did have a few questions. And maybe starting with that first one around the vehicles, you know, the infrastructure. And I guess it's a question for Kersey, or maybe it's a question for Steve, I'm not really sure. But, you know, as you think about, you know, the tons from EVs, my understanding is it's, basically, just a sort of straight-up calculation, like we're giving this incentive, and they would be otherwise using this vehicle, now they're using an electric vehicle, so we calculate the GHG savings, we calculate the criteria pollutant reductions, and then we're done. And yet there's this infrastructure side to this that is not accounted for in that.

And I'm just wondering if there's any creative ways you could think of that we could potentially integrate those two, yeah, the chargers-plus or the hydrogen refueling infrastructure, plus the vehicles?

MR. SMITH: I'll let Kersey handle that.

COMMISSIONER MONAHAN: Well, this is such a simple question, Steve.

MR. MANLICLIC: I was going to let Steve handle that one.

COMMISSIONER MONAHAN: I don't know if Steve thinks it's safe to answer that question.

MR. MANLICLIC: So I think -- and there are folks at my agency that have way more experience and knowledge than I on this, but from what I have seen in my work on California climate investment, I do believe, correct, Commissioner Monahan, we, you know, we're only calculating emissions reductions from the vehicle side. I think there's been times where, you know, we look at, you know, had the -- like the vehicle would not have been deployed if it wasn't for the infrastructure.

And I think in that sense, when we do the quantification, we then, you know, we treat the project as if it was like the vehicle paired up with the infrastructure. And so that's where, I guess, there's a quantification in the sense.

But I believe, yeah, correct, we, at least from what I've seen, we haven't done much of just quantifying solely infrastructure, it's always been if it's been paired up, if the project has been paired up with a vehicle or a piece of the equipment.

MR. SMITH: And maybe I'll just add. Thanks Kersey. Maybe just I'll add.

I know for the AB 900 process, which is looking specifically at large infrastructure investments that would be subject to some reduced impact from CEQA, there are quantification methodologies that have been used in that context for determining the benefits associated with electric vehicle chargers. And so there have been a few cases. The Oakland As Stadium and the new stadium project in Inglewood where electric vehicle charging was used as a method for reducing the greenhouse gas emissions associated with the project in order to achieve near-zero.

So I think some refinement is needed and I think it would be great to work on that. But we, in that case, we were looking specifically at the electric vehicle charging investments and what kind of benefits might come from that. So you have to make a lot of assumptions about how many vehicles get charged and so forth. But, you know, show your work, do the calcs and, you know, it can spit out a number. So I think there are ways to do that in combination.

That's similar to the work that's been done under Senate Bill 375 for the Sustainable Community Strategies where investments in infrastructure by municipalities can help reduce the carbon impact of their transportation plans.

So there's some work out there, and there's certainly things that we've accepted as part of that, but I think there's probably more to do.

COMMISSIONER MONAHAN: Thanks.

I was actually intrigued with, Gia, how you were presenting some of the information on hydrogen. And, you know, can we claim that the EVgo-G.M. relationship is -- I mean, I don't know, it seems like a stretch, but this idea of more -- rather than necessarily having -- I mean, there's a lot of -- with hydrogen we could do from quantification. I'm not sure if EV charging lends to that -- lends, you know, that same opportunity.

And especially because we're trying to ensure that everyone has access, but sometimes that means that it's going to be more expensive, it's going to be a lot more expensive to make sure that there's access in multifamily dwellings and places that are just harder to install systems.

But I do think there's something that I really like about the fact that we should be doing more storytelling around investments. I thought, actually, Anthony, a lot of the work that's EPIC-related work, too, the storytelling aspect, I was like, well, these are hard to quantify, so we're going to have to actually focus more on, you know covering stories about individual investments or packaging investments in such a way to say like the specific gap filling for, you know, the multifamily dwellings that we know exist. In order to electrification transportation, we have to solve this problem. And even when we, I don't want to say fail, but, you know, we're learning from our investments.

So there should be an aspect, too, of learning, where it's to like we're just here to sugarcoat or pick the easiest things to quantify and just stick with those forever and ever and always. We're looking for ways to learn from our investments and recognize, we strategically need to invest in electrification for all that could be more expensive and harder to quantify.

Again, one more. Well, I have one more question for Anthony, and then a question for Andres.

So, Anthony, you had shown that slide where it said that you were quantifying the amount of money located in and benefitting low-income and disadvantaged communities. What does that mean, "benefitting?"

And it kind of gets to the question I want to ask Andres, too, about how do we quantify that it's a benefit to disadvantaged communities?

MR. NG: Yeah, absolutely. So, yeah, like you said earlier, Commissioner, I think the easy part is the locating; right? We have a pretty clear idea of -- you know, obviously, we know where the projects are located. And we can check a box, yes or no, if it's in a disadvantaged community or not.

The benefits part is more difficult. And the way we look at it within the EPIC Program is that the -- so the technologies that are deployed in disadvantaged communities are not necessarily -- or at least a benefit that we expect out of them aren't necessarily different than if they weren't deployed in a disadvantaged community; right? So, for example, a building retrofit or an HVAC technology, the benefits that are accrued are not -- we wouldn't expect, necessarily, a difference.

And so it's really about applying the suite of tools and methodologies that we have based on the technologies that we have. And we can subdivide geographically to kind of do a subset or more specific reporting on the impacts of our investments in disadvantaged communities.

I think the way that we try to ensure that our investments are trying to benefit is really at the front end actually. So, you know, to Andres point earlier about, you know, we've learned a lot of lessons over the years about really trying, at the beginning of a project, and really even, like really at the proposal stage of a project, to try to encourage as much partnership between technology developers, between project developers and the actual community, so that we avoid situations, like Andres was talking about, where communities are only getting consulted at the eleventh hour and they can't really make a difference.

We've tried to really educate our applicant pool and, also, kind of the wider community about, you know, start talking. Start making these partnerships, you know, before solicitations are released so that you can apply as a coherent team, and that the needs and the desires of the community are up-front and center. And then as we, as the Energy Commission, can evaluate that proposal as a whole and it's a whole picture; right?

So when we talk about trying to benefit

disadvantaged communities, we're actually -- it's a little quantitative but we're trying to address it at the front end, as opposed to like a back-end analysis.

COMMISSIONER MONAHAN: So if I understood you correctly, Anthony, then when you write located in and benefitting, it means that projects, both either in a DAC or a low-income community and there was a community partner that gave it, you know, in terms of there was community engagement at the get-go in the grant --

MR. NG: Um-hmm.

COMMISSIONER MONAHAN: -- to say that it is benefitting the community; is that --

MR. NG: Right. Right.

COMMISSIONER MONAHAN: -- is that right?

MR. NG: Yeah. Yeah. And it's -- so it's a mix between the quantitative and the qualitative; right? So we can run the numbers of quantitative benefits of an installed technology at disadvantaged communities, so that would be a quantitative benefit --

COMMISSIONER MONAHAN: Right.

MR. NG: -- you know, for a particular

site and a particular home. But also, yeah, this qualitative nature about, you know, increasing engagement, especially at the start of the project.

COMMISSIONER MONAHAN: Right. So it must have community engagement?

MR. NG: Um-hmm.

COMMISSIONER MONAHAN: It maybe is a little bit of the check-the-box, not quite, but at least --

MR. NG: Right.

COMMISSIONER MONAHAN: -- that. It may not be as rich as Andres would like.

So, Andres, you know, I actually talked to the Disadvantaged Advisory Group and brought up some ideas about like, well, how do we quantify? How do we even account for benefits? And we had a long list of ideas around what we might be able to do.

And I'm wondering, you know, in addition to this, I don't want to call it just a process because that does sound like just check the box, but in addition to community engagement at an early level, you know, are there -- you know, could we actually come up with some specific criteria that would say like, oh, if it's diesel pollution reduction, boom, that counts, especially if it's in an impacted community. You know, boom, just that is a check-the-box.

You know, I just wonder if there are certain investments that we could make that we could just, you know, assume would have a benefit? Do you have any ideas on that front for --

MR. RAMIREZ: Yes. I mean, I think you hit it on the nose; right? It's really measuring whether is it lowering the emissions. You know, the idea of clean transportation is just that; right? And I think it's being very critical of that evaluation; right? Are emissions being lowered or not, you know? If they're not, then why not; right? What's the issue? Is the program not being successful? And, you know, what's the challenge to it; right?

Because I could tell you I mean, and you talk about DACAG a little bit; right? Like, you know, it's a gray area sometimes when people say that they're putting a project in a disadvantaged communities because all that live in a disadvantaged community, we don't see it. So are they like on the edges? Are they claiming something they're not? I think being able to assess that as well; right? Because, you know, we could tell you; right?

Like in our communities with -- our communities are thirsty for these kind of programs; right? Because we live it firsthand, not -- but the challenging piece of it is. And that's why I said, you know, really, really, incentivizing innovation, you know, there are challenges to working in disadvantaged communities; right? Folks are -- there's a lot of public transit users, for example, or folks -- there's a lot of renters in our community that don't -- may not have access to in-home charging, if we're trying to do electric vehicles for example. And so there's a need for infrastructure change; right?

But the bottom line is, at the end of the day, what we want to see is that improvement of emissions; right? We don't want our communities to stay as the top five percentile in CalEnviroScreen. And I think that's a piece of it; right? That's the irony of it; right? Our communities get targeted now for investment because of that. But it's been quite a few years since CES got created; right? And a lot of those communities have stayed top five percent. So what's the missing ingredient?

COMMISSIONER MONAHAN: Okay. Thanks.

I want to make sure Steve and Commissioner Douglas have a chance to ask questions.

Does anybody have questions or comments, maybe?

COMMISSIONER DOUGLAS: You know, maybe just one.

You know, the challenge of really capturing the full benefits of these projects has been with us for a long time. I mean, we've always struggled to articulate and measure, especially in, you know, quantifiable or project-to-project comparable way, the benefits of these investments. And in some ways it may be even harder as we try to capture, you know, what are the benefits to disadvantaged communities, for example? Did we -- you know, yes, maybe we met the metrics for a certain amount of money being invested in disadvantaged communities. But, you know, what was the experience of the project?

What was learned? Was it applicable? Was it replicable?

And, I guess, kind of two questions.

I wonder if any of the panelists want to speak to any ideas for how to better capture and understand and explain benefits of projects and investments in disadvantaged communities?

But, you know, Andres, with your participation, I wonder. You know, I've just been reflecting, as I listen to this, that, you know, sometimes the voices that have the most resonance and credibility when we want to talk about benefits in certain communities are people from those communities, you know, who can really tell a story about how investments led to changes in their lives or changes in, you know, employment prospects for people in the community, or whatever the case may be. And I wonder if we're doing enough to tell some of those stories?

And so those are my two questions.

MR. RAMIREZ: One suggestion I would definitely make -- and this is also a question of capacities and resources; right? -- but I think it would be beneficial for Staff to do site visits to some of these projects and see and witness firsthand what's being done; right? Because a lot could be said through the course of a report and through graphs and tables; right? But really getting to what you're saying, Commissioner Douglas -- right? -- hearing and seeing firsthand from people who are or are not benefitting from a program or project goes a long way to really assessing the effectiveness of the program.

COMMISSIONER DOUGLAS: Yeah. No, I agree with you. And I think the other thing it does is it helps the Staff or, you know, Commissioners, or whoever it is who has the opportunity to do those visits, it helps them really see and learn from and understand kind of the totality of the experience as opposed to the report out from the experience.

And I know that from some of the visits that I've done, you know, I've come away with a perspective that's informed me across the Board and in a lot of different ways and with much more. You know, the benefits of site visits and really hearing from people, and really seeing the results of what you've done are just really hard to, you know, hard to even express how much more valuable that can be when it can be done.

And I'm just curious, any other thoughts or comments on that?

MR. MANLICLIC: Sure, Commissioner Douglas. I just want to share two thoughts.

When I first came to CARB three years ago and I was learning about the AB 1550 priority population criteria tables, you know, I was a new employee. To me, it felt like, you know, as everyone here has said, it kind of felt like a checklist or a checkbox, and so I came in, you know, just a little bit skeptical.

You know, now three years into, you know, being on the implementation side, you know, what I've found, you know, that checklist to -- where I've found its value is actually, you know, number one, it's allowed me -- you know, I'm a five-foot-five guy. I'm not very intimidating. It's allowed me to hold the other, you know, agencies accountable when they work with the GGRF. I've been able to call them and say, okay, I've looked at your project data. You're in a disadvantaged community. How are you tracking your benefits? Like it's given me something to point to and given me that extra clout, like, you know, how many letters of support did you get? Did you hold workshops?

And so, for me, that's been the value of that, again, still, qualitative, but it's helped me be able to, you know, hold grantees accountable and whatnot, something to point to.

So that's kind of the first point I wanted to make.

And the second is, again, just, you know, after three years into this, you know, I would love -- I'm a numbers person -- I would love to have, you know, the benefits be quantitative. And I still struggle with that. But I think what I've found, you know, more, you know, beneficial is really, like the project profiles, like Andres has said, hearing -- and Anthony has pointed out, hearing, you know, the personal stories, you know, once the project has been implemented.

I know on the ag incentive side, I heard from one of my colleagues that we had a farmer, when he got his new tractor, he slept in it, you know, the night that he got it, he was just so excited. I don't know how true that is. You know, I wasn't there.

But, you know, seeing that -- and another example, being able to interact with our grantees. You know, the air districts, they're able to share those anecdotal stories.

And so, you know, I don't know if it makes sense to count the number of stories we have or whatnot. But just, I think, at least in the moment, until we can be fully quantifiable, I've found a lot of, you know, joy and hope in hearing the stories, you know, and, you know, getting that anecdotal information.

COMMISSIONER DOUGLAS: Yeah. Those are great comments. And, you know, I enjoyed your presentation and the numbers and the analysis you were able to bring to it because that was great, you know, and well explained, and that was really good.

You know, it's interesting because some of what you get -- some of what I think you need is kind of that real personal or human connection to what the story is, you know, in order to be able to articulate and explain what these do. You know, that, you know, just that kind of connection to, you know, what you're trying to do and what the reality of some of these communities is, and how that funding helps or supports them, and what a difference it makes in people’s lives. It’s like that can come through, you know, in helping you know what questions are -- what questions to ask or how to follow up or -- you know?

So, yeah, but this has been a perennial challenge, is how to take the experiences from all of these diverse projects and, you know, articulate what’s been achieved in a way that captures some of that.

MS. VACIN: You know, I might just add one more thing, if I can? Thinking about taking these stories from, you know, the impacts and looking kind of backwards after making investments, there could also be a benefit in doing some forward looking as well; right?

It wasn’t my story but Tyson actually took a trip down south and was in a disadvantaged community and was talking with a community leader and asking about EV charging infrastructure. And he was saying, “Well, that’s great, you can put numbers on -- you know, you can tick numbers off on how many you’ve put in this community but it doesn’t necessarily mean anything here and, you know, whether we use it or whether it gets vandalized or whether it's bringing jobs to our community."

And so what I took away from that was asking communities what it is they need and want and how best they can be helped is another really important tool. And I think, you know, some of that happens. But sort of looking forward and looking back could be another way to think about it.

COMMISSIONER DOUGLAS: Yeah. That's makes a lot of sense. It also tells you what to measure; right? You know, it informs you. Is it number installed? Is it --

MS. VACIN: Yes.

COMMISSIONER DOUGLAS: -- do you want to go back and check and make sure they're still functioning? And, you know, so, yeah, there's a lot you can learn from that.

I don't have any other questions, but I don't know if anyone else wanted to speak, so thank you all.

COMMISSIONER CLIFF: Thanks, Commissioner Monahan, if I may just quickly?

And thank you, Commissioner Douglas. Great comments and appreciate those.

One of the things that struck me, if anyone happened to be paying attention to the CARB Board meeting yesterday and last night, was that this AB 617 process that we've been going through at the Air Board has actually taught us a lot about how to interact with communities. And while, you know, we he a lot to do, and I think a lot of learning, we did hear a lot of stories about the specific interaction with communities that I thought was really encouraging.

And as I've been observing this process and being a part of the process over the last several years, I see how that direct interaction with a community-driven process to say, here's what we need, and then the state can respond, okay, here's what we can do to help, and then partner with other agencies or local agencies to better actually impact those communities in a helpful way, I think is something where -- at least something of a process that we can probably bring to other venues.

And so that's one of the things I know that the investments have been informed by where we hear directly, well, what do you need? And they'll say, we need this technology, or we need stipends, like to actually participate in processes. I can't do that without a little bit of help. You know, so there's been a lot of that learning that I think has been really helpful to inform our process, not just, you know, well-funded lobbyists who can come and say, here's what we think the right outcome is. We all know that they have plenty of sway, just given that they have the time and they're paid to participate.

So getting that interaction is really critical. And, you know, I think to Andres' point, there's a lot of work that we can do there.

So I'm just curious, Andres, if you've had any -- if you've been following the AB 617 process and you think that there -- that I'm sort of on the right track, that there is anything instructive there and, if so, what we might bring from that process to help better inform our other investments or, otherwise, if there are, you know, things that we should b doing better in order to make -- you know, have more impact on these communities?

MR. RAMIREZ: Unfortunately, I really

haven't been following the AB 617 too closely. We've been having a lot of stuff going on down here. But, you know, I just think there are steps being taken. I mean, we've been giving a lot of recommendations to DACAG of improvements.

So I think you're on the right track. I mean, I think these conversations are vital; right? Having these open dialogues and having this input, it's how we learn.

You know, I think at the end of the day it's we understand, you know, our stance, from the CEC, from CPUC, from all of the agencies, it's hard. You all, the intention is there; right? I think it's just the implementation processes, learning, talking to folks on the ground, is that missing ingredient.

And then the other piece, I think, is really starting to think more broadly and across agencies, as well, which I think -- I know is a difficult thing in such a massive, you know -- California is such a massive state; right? But like I mentioned earlier -- right? -- when it comes to the issues in disadvantaged communities, a lot of it is -- it covers quite a few issues; right? And we've got to just make sure that we're approaching it in a way that's broad. So that's all I will say to that.

Definitely like, you know, then if you take the lessons from there and apply them and don't be afraid of failure, I mean, I think that's how you learn -- right? -- by assessing what works and what doesn't.

But, really, the intention of having improvement in terms of impacts in DACs is really what's important.

COMMISSIONER CLIFF: That's great. Yeah. Thank you very much.

That's all the comments I have. Thank you.

COMMISSIONER MONAHAN: Okay. Can I ask one last question of Kersey? I'm sorry, Charles. I know that we're stealing all your facilitation time.

But I thought it was fascinating, the UC Berkeley jobs co-benefits analysis that you're funding. And one of the -- we've been thinking about how to account for jobs from the buildout of ZEV infrastructure. And I wonder if there -- does that tool -- do you think we should be reaching out to UC Berkeley to explore more quantification of the jobs aspects of our infrastructure buildout? We have it for fuels because we asked the project, well, how many jobs are you creating? You know, so we have that data, but we don't have it when we're building out charging infrastructure or hydrogen facilities.

MR. MANLICLIC: Sure. So, Commissioner Monahan, I believe -- you know, it's been a month since I've looked at that tool -- I believe it actually can handle infrastructure already, like it's already -- like when I showed those, you know, three sectors, like I think that's one of the like types of programs that that tool can already handle. So I think it may be able to give you and your team kind of a first cut at it. So I don't know if, you know, Berkeley has a more in-depth analysis but I think that might be able to assist.

And I know that -- so, that was actually my old team, the Climate Investments Branch, the California group that handles the GGRF Fund, that worked with Berkeley on that. So they may be able to provide some extra insight as well.

COMMISSIONER MONAHAN: Well, if you can

have that as a to-do, maybe, I'm not sure if it's Susan or Charles, to coordinate with you, Kersey, to follow up, that would be great.

MR. MANLICLIC: Happy to do that.

COMMISSIONER MONAHAN: All right. I don't -- Heather, do we have time for Charles to -- I think we've exhausted our questions, but do we have time for Charles to ask any or do we need to move on?

MS. RAITT: This is the time where we were going to move on to public comment, unless Charles has a burning question he wants to ask.

MR. SMITH: No. I think I've benefitted from the fact that folks on the dais, and even folks just on the panel themselves, have identified pretty much all of the themes that I was hoping to touch on, so thank you.

MS. RAITT: Great. Well, thank you, Charles.

And thank you to each of the panelists. That was really an excellent discussion.

And so with that, we will move on to the public comment period. And so if anyone has an interest in making comments at this point, you can go ahead and raise your virtual hand if you're on the Zoom and -- you know, online Zoom. And then if you're on the phone, you press star nine to raise your hand.

And we have RoseMary Avalos from the Public Advisor's Office with us here today to go through any comments that folks have.

Thank you, RoseMary.

MS. AVALOS: Okay. Thank you, Heather.

As I look at the list right now, I don't see anyone with a raised hand. So just a reminder, if you are on the telephone, dial star nine to raise your hand. And I'll give it a little bit of time to see if anyone wants to ask a question.

Okay, seeing there are no raised hands, I'll go ahead and pass the meeting over to Commissioner Monahan.

COMMISSIONER MONAHAN: Great. Well, thank you. I really appreciated this conversation. I want to thank Susan, Kersey, Anthony, Gia, Andres, really everyone contributed, and that was a really important conversation to me because I do feel committed to doing the best job we that we can in articulating the benefits of our investments, and also looking at more diverse criteria beyond just project location or GHG reductions.

I’m sorry. There is garbage collection outside. I hope it’s not interfering.

And I also wanted to thank Steve Cliff for joining from the Air Resources Board. I really appreciate his participation, and Commissioner Douglas as well.

Steve or Commissioner Douglas, if you have any final comments, just pop onto the screen. All right.

Oh, Steve’s coming on. There he is.

COMMISSIONER CLIFF: I was going to defer to Commissioner Douglas.

I just wanted to express my appreciation again for being a part of this dais. And to all the speakers, really informative.

And even, Kersey, I learned some stuff about things that I probably should already know. So it’s great to have this opportunity to be informed. But I do really appreciate everyone’s participation.

And, again, thank you to CEC for letting CARB be a part of this.

COMMISSIONER MONAHAN: Great. Thanks

Steve.

So just a bit on next steps. So we plan to make the draft report available in early December. And we're working towards an earlier release in November, if possible. So this is going a little bit later than we initially proposed. And I'd say, COVID-19 really did get in the way of our timeline. What a surprise.

We really value the input from the workshops that we've held. And we are reflecting on what we're learning. And we will try to put that into the draft report that we'll be publishing. The draft report, again, is going to draw from the workshop presentations, the discussions, and the public comment. So I just want to thank everybody who has participated through this process.

I particularly want to thank Heather and her team, all the folks that have helped out, Harrison and others, on making sure that this new venue of using Zoom worked effectively. I think it really did. We learned a lot. And we also learned that people actually like it. Some people like it better than the old coming into our windowless room to have our IEPR workshops, so there you go. We're learning a lot through all of this.

And I just thank a lot of folks, also on the Fuels and Transportation Division Team, there were so many people that were involved, and from other divisions, as well, R&D. So it really takes a village to put on an IEPR set or workshops and write the document and incorporate public comment.

So we're looking forward to that next stage where we get some feedback on the draft -- what did we get right? what did we get wrong? -- so that we can publish the best document possible at the end of the day.

Anyway, thanks everybody. Have a good rest of your Friday. Go outside. Everybody has some good air quality today, so they can enjoy the outside. So thanks everybody.

(The workshop concluded at 2:44 p.m.)

CERTIFICATE OF REPORTER

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

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

IN WITNESS WHEREOF, I have hereunto set my hand this 4th day of December, 2020.

Martha L. Nelson

MARTHA L. NELSON, CERT**367

CERTIFICATE OF TRANSCRIBER

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

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

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

Martha L. Nelson

MARTHA L. NELSON, CERT**367

December 4, 2020