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CALIFORNIA ENERGY COMMISSION

STAFF WEBINAR

In the Matter of: ) Docket No.
) 18-IEPR-08
) RE: Barriers Study Implementation

IEPR Staff Webinar on Tracking Progress for Energy Equity

CALIFORNIA ENERGY COMMISSION
3RD FLOOR CONFERENCE ROOM
1516 9TH ST.
SACRAMENTO, CA

WEDNESDAY, JUNE 27, 2018
10:00 A.M.

Reported By:
Peter Petty
APPEARANCES

CEC Staff:

Pamela Doughman, Advisor to Chair Weisenmiller
Heather Raitt, IEPR Program Manager
Dorothy Murimi, Public Adviser's Office
Kaitlyn Lund, Intern
Travis David, STEP Administration

Public Comments: (* Via telephone and/or WebEx)

*Ilonka Zlater (phonetic)
*George Nesbitt
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JUNE 27, 2018  
10:00 a.m.

MS. DOUGMAN: Hello and welcome to the 2018 IEPR Update Staff Webinar for Energy Equity Indicators. My name is Pamela Doughman. I am an Adviser to Chair Weisenmiller. And this meeting is being recorded and we plan to post a transcript on the IEPR webpage in a few weeks.

For those participating well, this is a webinar, so everyone’s participating by WebEx. Please type your questions into the chat function. We will be saving your questions until the end and then we will be reading the questions from the chat function.

Also, Dorothy from the Public Adviser’s Office, go ahead.

MS. MURIMI: Hello, everybody. If you have any questions you can go ahead and send them to diversity@energy.ca.gov we will be forwarding those questions on to Pam and we'll be able to answer those for you. Thank you.

MS. DOUGMAN: Great, thank you.

Okay. So by way of background, the Energy Equity Indicators, this follows from a recommendation in the Barriers Report, the SB 350 Barriers Report that was adopted by the Energy Commission in December of 2016. The Energy Commission's report, the Barrier Study, focused on
energy efficiency and renewable energy, as well as small business contracting in low income and disadvantaged communities.

Also, SB 350 directed the California Air Resources Board to prepare a companion study. And they published their guidance document earlier this year, focusing on transportation in low-income and disadvantaged communities.

So as I said, the Energy Equity Indicators implements one of the recommendations to develop standardized Energy Equity Indicators, as metrics, to ensure low-income customers are being served and to use these metrics to set a statewide baseline to advance energy savings and track performance.

So this is the launch for the Energy Equity Indicators. And we plan to provide an update once a year in the form of a .PDF Tracking Progress Report and we'll be updating the Interactive Story Map periodically.

The purpose of these indicators is to identify opportunities to increase clean energy access, investment and resilience in low-income communities and disadvantaged communities. And this is part of the 2018 IEPR Update and written comments are due July 11th, by 5:00 p.m. Additional information on how to file written comments is included in the notice for this webinar.
So today, we have three presenters: myself, I'm Pamela Doughman and I'm an Adviser to Chair Weisenmiller. And we also have --

MS. LUND: Hi. I'm Kaitlyn Lund. I'm an intern in Chair Weisenmiller's Office this summer.

MR. DAVID: And my name is Travis David. I'm a GIS specialist with the Energy Commission. And my role in this project has been acquiring and managing the data side of things.

MS. DOUGMAN: Okay. So first I want to let you know how to find the Energy Equity Indicators.

So we have this page, this landing page. You can get to it by going to the home page of the Energy Commission and then the SB 350 page and the Barriers Report. That brings you to the Energy Equity Indicators page. And if you scroll down here, then you have an overview of what this is about and we have a sample interactive map. We'll talk about that in a moment actually, but first we want to show that there is a Tracking Progress Report, as well as Interactive Story Map. And the focus of today's presentation is going to be primarily on this Interactive Story Map. We want to show you how to navigate and explore the information that we have there. So let's go check it out.

Okay, so Travis, your turn.
MR. DAVID: All right, this is Travis speaking. As you can imagine, there are a lot of data sets in the world, dealing -- that can be used to indicate energy accessibility, investment opportunities and resilience, in a lot of different formats such as Excel tables, Tableau files, data base files and modeled raster data sets. With a multi-agency effort such as this we need a system that can store and share the data, so that we can choose the best data sets, set benchmarks, track trends over time and collaborate with industry experts and stakeholders such as yourselves.

As a GIS Specialist, my solution was to convert everything into GIS format and develop an analysis and sharing platform. GIS stands for Geographic Information Systems. You can use it to layer different data sets on top of each other, geographically, across the surface of the earth.

If the data has a spatial component such as coordinates, county, census tract, zip code, it can be used in a GIS and compared to each other data set and the more precise the better. I'll explain more about this in a bit.

In addition to creating a document with maps, the Energy Equity Indicator team has created this Interactive Story Map that allows users to really dig into the data. Let's follow the directions indicated here on the right-
hand side and scroll through the text to show you what I mean. You can move between frames by clicking this downward arrow. You can hover the mouse over the text section and use the mouse wheel to move down. You can also click on the header of the next frame to move to that frame, or you can use the buttons on the left side of the screen here to move frame to frame.

To show you an example of an interactive web map, I'll click on the button for figure three. All right, accompanying a descriptive text on the left-hand side is the data projected geographically to the right. And the white areas represent a lack of data. The gray lines, which are in many of the story maps, indicate California's 58 counties.

If you want to know what the colors represent, you can expand the legend in the upper right by clicking on it. The orange outlines are disadvantaged communities, tribal land is pink and low-income areas are dark green. At the bottom of the text for each frame is the source where we acquired the data.

Both the green low-income data set and the orange disadvantaged communities are divided by census tracts. Units of measure used by the American Census, which contain roughly the same population, meaning rural census tracts, like this one over here in the desert; a large size and
census tracts in high population areas, like in the City of Los Angeles much smaller.

When we compare other data sets divided by different units like zip code boundaries, we consider the area to be near low income if the part of the zip code boundary, which may have a different border than the census tract, overlaps low-income census tract boundaries.

You can navigate around the map using the buttons on the upper-left corner of the screen. The plus button zooms in. The minus button zooms out. You can hover your mouse over the map and use the mouse wheel to zoom in and out. And you can click and hold the mouse and move it to pan around.

If you're interested in a specific location, you can press the magnifying glass on the left-hand side and type in the area you're looking for. For example, I'll type in Long Beach, California and it zooms me there.

If you want to know the specifics about the underlying data, all you have to do is click on it. A popup comes up, giving you information on what you click on. In this case, we know that this is a low-income census tract. We know the tract number, the median household income for that census tract, the statewide median household income and the percentage, which is below the 60 percent benchmark, which indicates that this area is
disadvantaged.

Right now, it's on CalEnviroScreen. Here's the low income, so as we can see the tract indicates the tract number, the median household income, the statewide income and then here is the percentage, which is below the 60 percent benchmark.

So like I mentioned before, data is layered on top of each other in GIS, so this is showing this census tract as a low-income area. But when there's another layer beneath or above it, an arrow appears in the popup and you can click on that to move between the two layers that are overlapping each other.

So if I click to go over, I can see the disadvantaged community side of things, which is the CalEnviroScreen 3.0 layer, which indicates census tract, population, county name, zip code, city and its CalEnviroScreen score. And the scores above 75 percent are considered disadvantaged.

Now that you know how to operate the Story Map, I'll hand the mic over to Kaitlyn.

MS. LUND: Thank you, Travis.

So I'm going to be actually going back up a bit from where we were is on the left-hand side, the docs that Travis's promise is about and bringing us back to Table 1. So what this is basically showing you on the image on the
right-hand side, and as Travis explained it shows the test that correlates with that, on the left.

So on the right-hand side you can see it shows the 12 recommendations. These all come from the Barrier Report, from SB 350. And the associated indicators for all of those are on the right-hand side, as you can see.

So for example, Recommendation No. 2 is enabling community solar offerings for low-income customers. And the associated indicator, in order to make sure we're meeting that kind of recommendation and the way in which we do so, is community energy resilience.

Or as Pam explained earlier, Recommendation No. 5 from the Barriers Report is establishing common metrics and encouraging data sharing across agencies and programs. This aligns with all the indicators as seen and this is the Tracking Progress Report for Energy Equity Indicators as well as the Story Map here.

So this was kind of created off of SB 350's Barriers Report. And as Pam stated, the Energy Equity Indicators Tracking Progress Report and put into a story map format that's a bit more fun and engaging for all sorts of stakeholders to use, whether that be utilities or state agencies in order to see opportunities for further investment, in order to see the low-income and disadvantaged communities that are not receiving currently
all the benefits that they are capable of receiving, or even for any household to see that maybe wants energy efficiency upgrades, to see the programs and funding if they're eligible for it.

So that's Table 1.

I'm going to move and hover over the heading for Figure 1 and we're going to move to that one. So we went from recommendations from the Barriers Study to the indicators that are associated with this, and now we're moving on to the objectives from the Energy Commission, in order to meet so.

So the three spheres represent the three objectives of the Energy Commission. So one, access; two, investment and three, resilience as they're all seen in their own circles. And so we want to increase access. We want to increase investment and to increase resilience, in order to more so meet the needs of low-income and disadvantaged communities for clean energy.

So each sphere has associated indicators with them. As we look at the access sphere, access is the objective. And the associated indicators are below it. So that is number served, small business contracts and clean energy jobs.

However, it's a Venn diagram, so they do overlap so many of these indicators don't solely meet one of the
objectives. But they meet several. So for example, rooftop solar not only falls under increasing investment for programs such as this, it also relates to access. And that we want to increase the number of households that are served. And this is also relates to resilience in terms of lowering energy bills with clean energy. So they're not exclusive, but rather overlap and connect with each other.

And now I'm going to move on to Pam, who's going to talk more about eligibility for these programs that we're talking about.

MS. DOUGHBAN: Okay. So we're going to go back to Figure 3 and what we're looking at here is California Tribal Lands SB 535 Disadvantaged Communities and Low-Income Communities. And the point we're making with this map is to show how these different categories overlap.

So the orange outline, we draw down the legend here. The orange outline, the census tracts that are outlined in orange, these are disadvantaged communities and they are eligible for various programs and incentives funded by the Greenhouse Gas Reduction Fund.

We also have here the, what our definition is for low-income communities, we're using low-income census tracts that are 60 percent or below the statewide median household income. And the reason that we selected that is it's a lowest common denominator. And geographic areas
that meet this definition are likely to be eligible for a broad number of incentive programs.

Just for comparison, we also have a light green section here that is showing -- you can see this is above 60 percent of statewide median household income, but it's below 80 percent. And so for some programs 80 percent of statewide median income is the eligibility criteria. But for the remainder of the maps, we are focusing on the 60 percent and below, so when we say low income, that's what we're referring to for the purposes of the Energy Equity Indicators.

Okay. And next is Kaitlyn.

MS. LUND: All right. So we're just going to the next figure. So as Travis said, I'm going to use the wheel to scroll down and we're actually going to Figure 4. So this is low-income areas with highest August electricity bills, so that's what you're seeing on the right. It is zoomed into this specific area is where it's set, but this is just to make it a bit more easier and a bit easier to digest.

So we chose to focus on August electricity bills, because it's during the summer in a particularly hot month, when people tend to have a bit higher of an electricity bill such as from using the AC. So I'm going to pull down the legend just to explain that a bit more. So I'm going
to scroll down the legend and I see the green. So this is what Pam and Travis have been discussing, so this is our benchmark for low income, which is less than 60 percent of the statewide median household income. So you can see that green layer on the map. And that's going to be showing up on a lot of our maps, but we're going to keep on explaining it.

As we go up, we can see the other ones. So the light blue is the August electricity bills for within a low-income census tract for multifamily. That's at least $300. And this map is only showing Southern California Edison. But there are -- just because that's what we have right now, in terms of utilities, so that's why it looks a bit more narrow.

And then the gold is showing August electricity bill within a low-income census tract for a single family. That's at least $300.

And one more layer we have on here as well, because as Travis was talking about, the GIS allows us to use multiple data sets to collect on top of each other. We're using additional cooling degree days that are greater than 1,300. So whether an additional cooling degree day is any day in a specific location where it reaches above 65 degrees and invite how much that is. So if it's 10 degrees hotter than 65 degrees on a particular day, one day of the
year, that's equal to 10 cooling degree days so just to explain that a bit more.

So I'll close the legend. I'll just open and close it. So you see a lot of colors that are meshing on here. And as Travis explained before, that's just the layering of data. So if you see this lighter green, which is still the low income, if I click on it, the only difference between this one and the other green is that that has an additional layer on top. So low income, as you can see, and when I use the arrow at the top, the other layer on top is additional cooling degree days.

And the importance of this is it's showing -- with all the layering, it's showing that these low-income areas also have very high August electricity bills and that they're in areas that tend to be super-hot. So for example on this, where zooming in on Riverside and San Bernardino and the people there are paying higher bills that are also low income when they're also in hot areas.

So I'm going to pick a specific point, just to make this a bit easier. I'm going to click on this gold one, San Bernardino and this information popup comes up. So the first layer that comes up is the low-income census tract. So as you can see, the 60 percent benchmark and it's lower than that. And if I click the arrow on the top, I can move it to the next data set and this is showing
August electricity bill within a low-income census tract for a single family. And you can see on the second line, that's about $500, which is substantially high and it does show as well that it intersects low income, but is not a disadvantaged community. And if I even want to go further to see the next status that it intersects, I'm going to press that arrow again, and it shows the additional cooling degree days.

So this one is modeled for 2014, showing historical cooling degree days at about 1,600 days, however in these areas such as San Bernardino, it's only expected to get hotter in these areas, with climate change. So and another point that was added in this information table, was modeling additional cooling degree days from the year 2035 to 2064. And it's modeled that these cooling degrees are just going to double. So you can see that with climate change, that in these areas getting hotter, the cooling degrees are doubled to about 3,000.

So, exit out of that. So again, just one of the takeaways you can take from this is that this map is showing where further investments would be really beneficial to these communities that are low income as well as already have really high electricity bills, that are only expected to probably get higher. And we wanted to do this in order to relieve energy burden, which is the amount
of one's income that goes toward paying for that high electricity bill every month, as well to increase energy resilience, which is the services communities need to recover being de-energized from utility fires as well as from must being able to enjoy and have affordable, accessible and reliable energy as well.

And so you're going to stay with me, and I'm going to go to Figure 5. So again, I'm going to scroll, just go to this next one. It's a bit easier. So this figure is going off of that point about energy burden that I just made. So energy burden, again, is the amount of one's income that goes towards paying for that energy bill.

So what this shows, on the X axis, below here it shows where they kind of lie on the statewide median income, so 100 percent, that's the people who have the most high income. And from 0 to 30 percent, as you can see, that's people with the lowest income.

And this left Y axis is showing the fraction of their income that goes towards paying their energy bill every year. And on the right Y axis is showing just that total on map that they're paying.

So what's really important about this one is seeing although the orange bars, which is showing the pure amount of money they're paying every year, it's very different compared to the fraction of their income, which
is shown by the blue bars that people are paying. So although it's seen with the people of the highest income, again under 100 percent, that the orange bar, the total amount they are paying is the highest.

When we go to the 0 to 30 percent, the people with the lowest income, their orange bar, the average total amount they're paying isn't that much lower. But if you look at the blue bar, the fraction of their income, it is the highest. So this shows that the people with the lowest income are paying the largest portion of their income towards their energy bill every year.

And this was created from the U.S. Department of Energy, specifically from their program CELICA, Clean Energy for Low-Income Communities Accelerator. It's kind of just putting into a visual how much people pay, especially low income, for their energy each month.

MS. DOUGHRAN: Can I just add a point?

MS. LUND: Uh-huh.

MS. DOUGHRAN: So this is showing Riverside County. And Riverside County includes a desert area as well as a mountainous area. And then it's part of the larger Los Angeles Area Basin, so there's a mix of different climates.

MS. LUND: Thank you, Pam. Yeah. So it's showing a specifically hot area.
And I'm going to keep going. Kind of related to energy bills, I'm going to go to Figure 8, so as Travis said I'm using these dots on the side. So Figure 8, that's what I want, take us down there. And this is showing, in relation to energy bills, specifically high-cost heating fuels.

So as I look on the map, pull down the legend again. And rather than showing the green that we've been seeing before, which the specifically showing low income that are less than are equal to 60 percent of the statewide median income, this is rather showing a different type, which is top 20 percent of households in low-income areas that aren't using natural gas, solar, or electricity as a heating fuel.

And it's also showing in the pink that you can see in Southern California, and some in Northern California as well, Tribal Lands.

So what this map is showing is that a lot of these areas that are low income and a lot that are -- some that are in Tribal Lands and some are in rural areas are still using the most expensive heating fuels, which are propane or fuel oil rather than less expensive heating fuels, which are natural gas or electricity or even solar. So this is just something that adds an additional price to the energy bills, which we have seen previously are already
substantially high.

So now, I'm going to move on to Pam and she's going to talk to you about Figure 11.

MS. DOUGHPMAN: And just to note. We are highlighting some of the key points and some of the key figures, but there are additional figures that we are leaving to you to explore at a later time.

Okay. So we would like to highlight Figure 11. This figure shows areas with the lowest investor owned electric utility energy efficiency investments. And the data on this map is focusing on 2016, 2017, but going forward, we are planning to look at trends across different years. And also, we're planning to add in publicly owned utility data.

So then, and again some of the maps are defaulted to the state. Others zoom in to a particular area and that when we zoom in, it's to help the user of this interactive web map focus on the information that's described on the left. We're highlighting that particular point.

So looking at the legend here, for this one, we see the areas that have the golden outline are showing the CEDARS data that is California Energy Data and Reporting System. This is for the investor owned utilities that are regulated by the California Public Utilities Commission.

And this is focused on the lowest 20 percent. So
we're just zooming in on the areas where there is the
greatest opportunity for additional investment. And the
benchmark here is about $5,000 per 1,000 people per zip
code. But we have filtered that for this map to focus on
areas that intersect census tracts where 70 percent of the
structures were built before 1979 and they are low-income
census tracts.

And so the reason we are highlighting the older
buildings is that the Energy Commission's Energy Efficiency
Standards have been saving Californians billions in reduced
electricity bills since 1977. And the data that we had
available was by decade. So this is a proxy showing areas
that are likely to benefit greatly from additional
investment in energy efficiency. But it's just a starting
point to encourage people to dig deeper, to see what
opportunities might be located in these areas.

Okay. So then, I wanted show that the solid
color is focused on the numbers served. So this is the
number records, per 1,000 people, per zip code is less than
the 20 percent, it's the lowest 20 percent. And in this
particular indicator, the benchmark is 1.6. Again, this is
areas that are intersecting the areas with many older
buildings. And so if you look at areas that have both the
solid color and the bright outline here, then you can see
this is the census tract that has low total expenditures
relative to other investor owned utility census tracts.
And it has a low participation rate, so this area may be a
good place to look at for future additional targeted
outreach.

So you can see there's another similar area here
in Kern County and up in Northern California there are some
areas that have that characteristic.

Okay. So next it's back to Kaitlyn.

MS. LUND: All right, and I'm just going to go
the figure under this, so I'm going to click on your 12
heading. It's going to bring us down there, as Travis told
us earlier.

So what does this showing just to read the
heading is low-income areas with low solar capacity, per
capita. And we're specifically looking at Long Beach area
in this map. So this is relating to Indicator No. 3, which
is about rooftop solar. So the importance of this one is
that showing low-income census tracts. So I'm going to
pull down the legend. So in the teal color that's seen, it
says "NEM System Size." NEM stands for Net Energy
Metering, which is customers who generate their own energy,
whether through solar, to meet their own energy needs and
then they can also receive financial credit for that.

And there's that across that we see. And then we
also see the red dots everywhere, so what these represent
is high density housing. So it says low-income census
tracts of those specific utilities, PG&E, Southern
California Edison and SDG&E, for multifamily accounts. So
that's high density housing whether that's an apartment
building, for example.

So the importance of this is it's showing in
multifamily housing buildings, which are all the red dots
again, there is less roof space actually and therefore less
ability to rely on just rooftop solar.

And so we need different approaches to solar for
this different type of housing, because although we see in
the teal all the net energy metering, the red dots show
that many of these are, for example, like apartment
buildings rather than single family homes that have several
different roofs it's all under one roof.

So for this specifically, I'm going to look in
closer to Long Beach, so I'm just going to hover over the
area. I'm going to click in and it's going to take me
there. So as you can see, Long Beach, Southern California,
it's a pretty sunny area. So you would think that there's
many opportunities and ability to use solar energy. So you
see the net energy metering size from all that teal,
however there are a lot of red dots, showing all the high
density housing, so all apartment buildings that have less
roof space for solar panels.
So in areas where specifically I'm going to talk about Long Beach, this'll be an opportunity for investment in different types of solar that don't rely solely on roof space and rooftop solar.

So as a takeaway, this is just showing specific low-income areas that might have more high-density housing, there needs to be more opportunities for investment in different type and different approaches than rooftop solar in order to increase access to solar energy or other types of renewable energy and also reduced those customers' energy burden since as was spoken about earlier renewable energy such as solar, is a lot less of an expensive fuel than propane or fuel oil.

So now it's going to go back to Pam and she's going to talk to you about a different figure as well.

MS. DOUGMAN: Okay. So we're going to jump down to Figure 16. Oh, just one other point about this net energy metering, these are areas with low levels of net energy metering, compared to other areas.

Okay, Figure 16. Okay, so this is showing the number of cumulative plug-in electrical vehicle sales by county for 2016. And so if we look at the legend we can see we've got the number of vehicles per county as well as the percent, relative to the population.

And another point about these maps is that the
colors are somewhat transparent. So that when they're overlapping it may appear to be a different color. So we have a salmon color and a blue color that when they overlap, they make more of a purple color. So that just means that we've got both layers on top of each other.

And when you have the blue dot, that is the percentage of electric vehicles per population, that that ranks lower compared to other counties than the total number of electric vehicles, then you have this purple dot inside of a pink dot, or a salmon dot, for example in Los Angeles. So this means that there are a large number of electric vehicles compared to other counties, but there are fewer vehicles per person compared to other counties.

And then, for example, if you look at Humboldt County then you can see the reverse, where there are relatively few or a smaller number of electric vehicles in the county compared to other counties in California. But on a per person basis it's pretty much in the middle, compared to other counties in California.

Okay. But something I want to highlight here is that some of the counties such as Fresno County in the Central Valley, have a relatively small total number of electric vehicles and a small number of electric vehicles per person. So this indicates, this data suggests that there's an opportunity for expanding access and investment
in electric vehicles for the Central Valley of California.

Okay. Now I'm going to go to Figure 17, which is a program. This is the Clean Vehicle Rebate Program. And this provides incentives for low-income areas of California. And this map is highlighting areas where there is a low level of investment. So that's shown, if you open the legend here, we see the brown color is the lowest 20 percent of rebate dollars per population in the census tract where the median household income is less than 60 percent of the statewide median income. So we are showing here that the areas that are both low income and have low participation in this rebate program.

So we can see -- why don't we zoom in to Los Angeles? See what's going on there. Let's zoom a little more. Oops. Okay. So we can see in these areas this is information that can be used by community-based organizations or local government interested in making sure that their communities are aware of this money that's out there to help them invest in electric vehicles. That this census tract, for example, has a lower -- it's not taking advantage of this rebate program as much as say, a nearby low-income census tract over here. So this data can help people recognize opportunities for further investment in their communities for electric vehicles.

Okay. So next is Kaitlyn.
MS. LUND: All right. So we're going to move past what Pam was talking about, electric vehicles. We're actually moving on to a different indicator. So I'm going to look on this side. I'm going to Figure 19, take us there. So this is about asthma related emergency room visits by county specifically. So this is focused on an indicator about health and safety.

So as we can see on the map there's a lot of orange dots. Specifically, it's only by county so as you see the dots they are only centered in each county. So as I pull down the legend I can see -- well I'm going to start from the bottom actually. So again that green that we've been seeing throughout all the figures we've been showing you, so the census tract median household income that's less than 60 percent of the statewide median income, so that's kind of the base we've been using.

As well we have as I scroll up on the legend, I see CEDARS total expenditures per person, so the amount of money that investor owned utilities are spending on energy efficiency investments specifically in old homes. So as Pam had explained before, this is specifically old homes and structures that were built before 1979.

This served as a proxy for building Energy Efficiency Standards. So it's specifically showing that. So the lowest 20 percent of expenditures from investor
owned utilities and energy efficiency investments in these old homes. Just to reiterate that.

And we scroll up, all these dots that are correlating, so it's a percent of asthma ER visits by population. And as said it by county. So it's not as many data points as before, but per county. So the bigger the orange dot gets, the higher percent of asthma ER visits.

And as well, I'm going to talk a little bit about the layering that Travis and Pam and I have been mentioning. So as you can see here on the map it shows the orange, which is the lowest 20 percent of money spent by IOUs. We also have the green, which is that low income of less than 60 percent of statewide median income. But if you look up here, as we can see in this -- oops, not that county, this county -- it shows, you see a bit of the layering of the data. And as Travis and Pam have explained before, that just causes a bit of a different color to out. So that is literally the green and the orange layer on top of each other, because it contains both of those data sets. So we see that.

And I notice a lot of orange dots that we're seeing, but we're going to specifically look at a few. So I'm going to go and look into Kern County, specifically. It's the one down here, click on the dot. So as it shows up I'm going to use the top arrow to scroll all the data
sets that are correlated, so I can see it as the low income, so 61 is the statewide median income. It's less than that. As I scroll again I can see it also has the orange that was talked about. So the lowest 20 percent of expenditures by investor owned utilities in those old buildings.

And then when I go back to the top or the arrows again to the asthma ER visits, it shows as we go down the table, it shows the county, Kern County. The total number of asthma ER visits specifically in the year 2015, which is about 5,800. It shows the total population in Kern County and below that, it also shows the percent of asthma ER visits according to the population of Kern County. So that's about 0.68, is what that shows.

And so even though I specifically zoomed in on that point, if you look as the whole at the Central Valley there tend to be those orange dots, tend to be a lot larger, which means they have a larger percent of asthma ER visits per population.

So this is kind of one takeaway of that is highlighting that there's a lot more opportunities for investment, especially in the Central Valley, in order to kind of reduce that energy burden that causes -- so when these low-income households, which it's showing from the layering in this data such as Kern County when they're low
income and they have had low expenditures and energy efficiency investments. And specifically in Kern County, that's a very dry area and when they already have high electricity bills this may cause them to make the decision whether or not to have insufficient cooling or heating. So perhaps their bill is so high that they decide to maybe not use the AC as much for a certain hot day. And this leads to the increased incidents of asthma, which then is correlated on this map by showing the ER visits.

So this would show further investments so we could reduce the energy burden. So their bills aren't as high and they don't have to make that decision necessarily to do such. And this also just shows how we need to increase then affordability of energy as well.

And I'm going to be moving forward to Figure 23. So again, I'm going to use these dots on the side as Travis showed us, to navigate and it'll take me there. And as it's loading we're specifically looking at low-income areas within fire threat.

So this is a different indicator related to energy resilience as spoken before, which is about the services and affordability and accessibility of energy for customers.

So when I pull down the legend we're going to look at this. So again we have that green that has been
spoken and referred to again and again at that baseline of less than 60 percent of the statewide median income. But specifically for this map, we're only looking at the low income on that level that are within Tier 2 and Tier 3 fire threat areas.

That's what we've specifically narrowed it down to. So Travis was able to get it so it doesn't show all low income, because although in the Central Valley we know before we are seeing a lot of areas that are low income, it's specifically showing -- or are maybe prone to fires -- it's specifically showing low-income areas less than 60 percent that are within Tier 2 and Tier 3 fire threat areas.

And as we go down the legend we can also see those different tiers. So the lighter orange, as shown here and throughout the map is Tier 2 fire threat. And that refers to areas that have an elevated risk for utility caused fires, specifically. So we're not looking -- although we know California is in general prone to fires, we're looking at specifically utility caused fires in this map. And that is what Tier 2 is referring to, like an elevated risk. And Tier 3, that darker burnt orange on the map, is referring to an extreme risk for those utility specific caused fires.

So what this map is showing as a whole, before I
zoom in, is that there's a lot of intersection. We see a lot of areas that are low income within Tier 2 and Tier 3 fire threat areas.

So specifically, I'm going to use the search bar that Travis told us about before. And I'm going to look into Plumas County. And you can see from that, that there's an intersection of all of the legend items we were talking about previously. So there is the green that's showing the low-income areas within fire threat area, the Tier 2 and Tier 3. There's a lot of fire Tier 2 and fire threat Tier 3 areas.

And so where we got these layers and definitions of these fire threat areas from is from CPUC, which is using data from CAL FIRE. And they actually just updated their standards to include these definitions of fire threat areas specifically caused by utility fires. So this is important because it shows more opportunities for utilities to increase energy resilience, because since many of these low-income areas are intersecting fire threat areas that are caused by utility caused fires this can lead to de-energizing and that's when your energy is shut off in order to prevent fires from spreading even further from utilities.

And this impacts further customers access and energy resilience when those utility caused fires do occur.
So, and as Pam's going to talk about more opportunities to increase this resilience from these fires are with microgrids. So I'm going to hand it off to Pam.

MS. DOUGMAN: Okay. So let's jump in on to Figure 26.

Okay, so this shows opportunity to increase energy resilience of critical facilities. And in this case, we have zoomed in to an area of Western Riverside County that is subject to Santa Ana wind conditions. And the Santa Ana Winds are hot winds that come over the mountain. They're hot and dry winds. And when we have Santa Ana Winds, there is a high risk of fire and so investor owned utilities may decide to reduce the risk of fire by de-energizing transmission lines. And we can see here we have some transmission lines coming through this area.

So if that happens, it could be a day or several days that this area may be without electricity. So it's important for the airports, the gas stations, other critical facilities in the area to have self-generation capability that will continue to operate if electricity from the power grid is not available.

So one way to provide that electricity, to provide self-generation, is through a local micro grid that is designed to have the capability to continue to provide...
local electricity even when the broader electricity grid is offline.

And so if we look at the legend here, we can see there are a number of critical facilities shown on the map. And these are -- we're just showing the publically available locations, fire stations, that sort of thing.

And then we have this color here is showing the highest fire threat on the CPUC Fire Threat Map, this is Tier 3. And this other color orange is the fire threat that's Tier 2. And then the white areas just to reiterate what Travis said earlier, they're just areas where we're not -- this particular map is not highlighting data in those areas.

And then other layers such as this layer is for federal lands. And then where there's an overlap of say federal lands and fire threat then we are getting this other color here.

And then if we zoom out a little bit, or we scoot to another area, we would see some energy funded microgrids. But to make that point I'm going to shift over to Figure 25.

Figure 25, so this has a different background area. This is showing the vegetation in the area. And this area is outside of one of the high fire threat areas, but still there was a fire, the Blue Fire, recently. And
there's a microgrid here on Tribal Land. This is the Blue Lake Rancheria.

This is in Northern California, in Humboldt County. And this is Blue Lake. It's a small city up there and there are some critical facilities, fire station etcetera and there's a Red Cross Emergency Center on the Tribal Land, over here.

And so there was a fire, and as the text describes over here, that the microgrid detected the outage due to the fire, the utility de-energized the area. But the microgrid detected the outage and islanded and kept the microgrid facilities, including a local emergency response center from experiencing a blackout.

No power was exported outside the microgrid. The microgrid automatically reconnected to the grid when grid power was restored. This was all done automatically and transparently as part of the standard operation of the microgrid.

Okay. So these two maps, Figure 25 and 26 just to reiterate, they highlight opportunities to dig deeper and consider whether it makes sense to design a microgrid for local areas to make sure the critical facilities in the area have clean energy to continue to operate in the case of a local outage.

Okay. So next is Kaitlyn.
MS. LUND: All right. So we're just going to go a bit below, so we're going to use the wheel to scroll down. And again, as Pam taught us, and I have stated, we're just showing you the highlights from the Tracking Progress Report. And just showing you that the ones that really tie in with the message and the key points of the indicators from the Energy Equity Indicators Tracking Progress Report as well as the ones that have really fun and interactive maps.

So this one is specifically California clean energy jobs by county, again, so this is a different indicator for clean energy jobs specifically. So I'm going to pull down the legend just to show you what we're looking at.

So this kind of shows you the colors of the dots and what they mean. So clean energy jobs total, the total number that's in each county, are shown by the orange dots and so the bigger they are the more jobs there are.

And then as we scroll down we see the purple dots, which are the percent of clean energy jobs by population per county, so according to the population, not just the total number. You scroll down again and you see that we do again have that green baseline of the less than 60 percent of the statewide median household income.

That's showing our low income.
And specifically to know as in this clean energy jobs figure as compared to the electric vehicle one that Pam had discussed before, there's a lot of layering of colors. So you see a lot of pink dots everywhere. So specifically in Orange County there's a pink dot. However, I just showed you there's only purple and orange. So this is showing --

MS. DOUGHMAN: Santa Barbara.

MS. LUND: Santa Barbara, okay. Pink here, sorry, so pink dots here as well as in Santa Barbara dots showing the layering of those two colors. So the orange and the purple that are layered on top of each other to make the purple.

So what this is specifically showing us is clean energy jobs are important, because they produce more jobs compared to the fossil fuel industry. And they further encourage economic development within each of those counties.

And this is pretty much showing that the number of clean energy jobs total per county, is not exactly matching the number per person, according to the population of each county. So I'm going to specifically highlight certain areas where it looks a bit different.

So I'm going to go into Fresno in order to show where the orange dot is bigger than the purple dot, which
is why there's a pink dot in the middle. So I'm going to use this search bar again. I'll zoom in right to it.

   See that dot, so the orange is bigger. So that's showing that the community jobs total in that county compared to surrounding counties is larger. It's pretty large. And then the pink dot in the middle is just the layering of the orange again in the purple. So that's showing a smaller amount of jobs, by population. So if I click on it, it'll show me hopefully. So the name it'll show you in the little box that comes up, Fresno, the total number is about 8,500 clean energy jobs. The population, however, is almost a million. And then the clean energy jobs per a thousand people is 8.71, which is showing us at the bottom that's only 0.87 of clean energy jobs by population percent.

   So in this area specifically of Fresno, where the total number is greater than the per capita number, this needs a bit more local hiring and job creating as well as a bit more workforce development on the local level, in order to expand how many there are, per, according to the population of the county.

   To look at a different one that’s, the opposite situation, where the purple dot is greater than the orange dot I'm going to go to the home button. That kind of resets us as Travis was telling us about. And I'm going to
look specifically at Glenn County.

So again, you can see that the purple dot is bigger than the orange dot, which is making the pink color in the middle. So if I click on it, it shows me again the same thing, so the name of the county is Glen and the total clean energy jobs is about 700. The population is about 28,000. And it's a lot higher, the clean energy jobs per thousand people. So it's about 24 jobs, which is 2.48 jobs according to the population, 2.84 percent, my apologies, by population.

So this is just showing, this map in general is showing however there in Central Valley you can see the dots are a lot smaller in general for both total number of jobs and jobs according to the population, so there's a lot more opportunities to expand clean energy investment in order to create more jobs in those counties. And as well, with the different sizes of the dots is showing you opportunities to expand those opportunities, especially in those low-income and disadvantaged communities where they intersect. As we can see in the Central Valley and even Riverside there's just a lot more opportunities to expand.

And now, I'm going to hand off to Pam. And she's going to talk to you about a different figure.

Chairman Doughman: Okay. So there's a lot of information here. And so we're just highlighting key
points and then you can go back and explore later. We're just hoping to introduce you to all this.

Okay. So this map is showing Energy Commission electric program investment charge, technology demonstration and deployment funding, through December of 2017.

We can see that many of the demonstration projects are in the Central Valley, Southern California and also Northern California. And if I showed a legend here you can see on this map we have the layers that were shown earlier on Figure 3 and on top of that we have information about the research demonstration projects.

Now, the EPIC Program is focused on benefits for investor owned utility owned ratepayers. So the locations are in investor owned utility areas for the demonstration projects.

The orange dots are showing those demonstration projects that are located in a census tract within a disadvantaged community. And then if we scroll down here, in the legend, we can see the blue dots are for demonstration projects that are outside of a disadvantaged community.

And one of the recommendations in the Barriers Report was to have at least 25 percent of the EPIC technology demonstration and deployment funding go to
projects located in disadvantaged communities. And the Energy Commission's EPIC Program has exceeded that target. I think we're at around 30 percent. And also more recently in 2018 I believe AB 523 was passed and so the Energy Commission is in the process of implementing AB 523. That requires that 25 percent of the EPIC funds for demonstration projects goes to disadvantaged communities. And in addition 10 percent of the funding for EPIC demonstration projects, administered by the Energy Commission, should go to projects located in low-income communities.

In addition, AB 523 has some other requirements related to benefits for the communities where the projects are located.

Okay. So next is Figure 32

So most of the information in the Energy Equity Indicators is focused currently on investor owned electric utilities, going forward we plan to add information from the publicly owned utilities. And Los Angeles Department of Water and Power is a leader in this area. They have an Equity Metrics Data Initiative that they use to identify opportunities for investment and service improvements.

And on the left here, we have a link to more information. And then here on the right this figure is showing the Los Angeles Department of Water and Power
And if we look at the legend here we see that it is showing the areas with the lowest participation, the lowest 20 percent per capita for fiscal year 2015/2016 by zip code that are located in Los Angeles Department of Water and Power service territory. And intercept with census tracts that meet our definition of low income, which is less than 60 percent of the statewide median income.

So we can see the green areas are -- this is an area. It's an LADWP area census tract with the median income in the census tract of 60 percent or below. And you can see in this case, it's 49 percent of the statewide median household income.

And then you can also see here -- let's see here. So the orange dots are showing, highlighting the areas that are opportunities for additional outreach, to raise awareness of eligibility for the LADWP's Consumer Rebate Program. This is a program for residential energy efficiency.

Okay. So then let's talk a little bit about next steps. So work in underway to implement the recommendations described in the Barriers Study. And the Governor's Office is facilitating progress to implement those recommendations and state agencies are working together to help implement.
And over the course of development of these energy equity indicators, I would like to thank all of the state agencies that provided input and helped us develop these indicators. Also, there were stakeholders that were very helpful in giving us feedback along the way. So thank you. As well as we had feedback from Los Angeles Department of Water and Power and other publicly owned utilities.

So going forward, as I mentioned, we plan to expand the data available through these indicators related to publicly owned utilities. And as other data become available then we will be weaving that in as well.

Okay. So next let me give it back to Travis.

MR. DAVID: Hello, this is Travis again.

I just want to mention data and technology changes over time and with this system we can capture and analyze each indicator when new data sets become available and add them in. We can develop tools with more analysis capabilities for deeper analysis. And we can develop more intuitive applications, so that industry experts and stakeholders have the tools they need to track changes over time.

To give you a taste, we included a link to a sample energy indicator application on the first slide. So I'm going to navigate to that on the left-hand side. It's
this link here. I'll click on the sample interactive mapping application link and the mapping application opens in a new window.

The difference between this application and the web map shown before is this application is even more interactive. This app contains what are called widgets, which are tools you can use to further dig into the data. The widgets are down here at the bottom. The legend widget is the same as the legend in the mapping application where it shows you what all the symbols mean.

The layers tool allows you to turn on and off the different layers. You can hold control and click to turn all of the layers off and on again. You can click on the base map layer to add different base maps. For example, I'll add the imagery, so that you can see what the data looks like relative to aerial imagery. I'll zoom in on Sacramento or I'll zoom in on this area. And you can kind of see. It gives you an idea of what's actually in that area, or I can zoom back out and click on this layer, which has roads and other named locations.

There are analysis widgets. I'll click on the screening one. And this tool lets you set an area you're interested in. For example, I'll make the area the City of Long Beach. It zooms in on this area. You can set a buffer distance around that point. I'll set the buffer
distance to ten miles. And then I can hit the report button and it creates a circle around the Long Beach point that's ten miles. And it tells me all of the active features below it. So for example, this feature here is the multifamily accounts. And I can click on the plus button and it tells me all of the multifamily accounts within that circle and all of their attribute information.

I can easily make a report or download an Excel file of this. Here's the Excel file button. And if I want a report, I can print the print button and it quickly creates a report of all of the active features with their attribute information within that circle of your area of interest. So that just gives you an idea of how to use that widget.

There is a chart widget. I can click on it and we set up one chart with emergency department visits due to asthma by county. I can click on it and it creates a table of all the counties in the ER visits due to asthma layer. And if you can see, the County of San Bernardino, Sacramento and Alameda have the most emergency room visits due to asthma. So it's a quick way of interpreting the data in graphic form.

Oh yeah, I also want to highlight part of that chart. It highlights the area on the map that you're interested in.
There's a print tool, which is here, which allows you to create a PDF or an image of the map you're looking at and download it. I won't wait for it to process. I'll give you the data.

And then there's also a sharing widget that lets you share what you're looking at through your Face book, Twitter, or post to a web page; the more collaboration on this project, the better.

There are a number of other widgets that could be added. There's a whole world of data out there. I'm excited to see where the Energy Equity Indicator Project goes in the future. And Pam can take it from here.

MS. DOUGHRMAN: Okay. So I want to thank Kaitlyn and Travis for their help with this. I also want to thank Akua McLeod who was our student intern last summer who was instrumental in helping move this effort forward. Also there are staff in many divisions of the Energy Commission that were very helpful. Thank you.

So I want to open it up for questions. Do we have any questions? Any questions on the chat?

Okay. So we do have some questions. Kaitlyn, would you like to go read the questions? There's a microphone over there.

MS. LUND: The first question is from Ilonka Zlater (phonetic) And just let me know if I can't pronounce
her name, to the host saying for Figure 11 specifically is the question, "Is this only for investments funded by utilities?"

MS. DOUGMAN: So let's go to Figure 11. Yes, this is only showing data from the California Energy Data and Reporting System, so that's only showing the investor owned electric utility data on this map, because we are focusing on energy efficiency, mainly electric efficiency investments.

MS. LUND: And question two is from George Nesbitt saying, "It would nice if you could choose which layer to view (low income/percent of old homes/percent of disadvantaged, etcetera.)"

MR. DAVID: Yeah, so that's part of our next steps. We're going to be developing more intuitive, more functional applications. We can add that into the Story Map eventually, but that's where the widgets come in. Instead of just web maps that have the ability to pan around and zoom into and click on things there's a number of widgets that come with the ArcGIS that we used to develop this that can be added. We just need to take the time, now that the data is in the system, to figure out what widgets are best. And from what you're saying it would be the layer of this widget, where we could develop a web application that has all of the layers. And then you
would have the ability to toggle on the layers that you are interested in that suits your analysis and then other layers like other widgets, like the screening tool, that allows you to extract the data that you're most interested in.

MS. DOUGHAMAN: And I'll just add, this sample web app does have some of the layers here. So we do have some functionality. In particular we have CEDARS residential energy savings here. Can you just change it, so that's the only layer you can see? For example.

MR. DAVID: Yes. And I can click on it and then it brings up that information.

MS. DOUGHAMAN: Okay. Great, the next question?

MS. LUND: So the next is from Alexandra McGee. She says, "I apologize for the ignorance on my part, but why does not running the AC trigger asthma? Because the asthmatic overheats?"

MS. DOUGHAMAN: Well, I think it's related to indoor air quality. And that there may be -- there has been some studies that are showing that improved energy efficiency and improved HVAC systems can reduce asthma.

And actually in the Tracking Progress Report, can I just click? We have this as the interactive version, interactive storing that, that's what we've been highlighting here. But we also have a PDF of a more
traditional Tracking Progress Report, which has some
additional, more detailed discussion.

   And let's see if I can quickly, let's see, so for
example this highlights some of the key findings by
geographic region. And then it goes and it has the maps.
And here, this is what I'm looking for right here, let's
see if I can zoom in a little bit.

Areas with poor air quality such as the San
Joaquin Air Basin in Central California experience high
numbers of asthma-related emergency. Such areas may
experience periods with little mixing of air between
altitudes and serve as major traffic corridors for
passenger vehicles and freight. A 2015 supported by the
California Air Resources Board reports asthma-related
hospital visits are elevated in populations living near
areas with high traffic-related air pollution. This
information is useful for targeting areas to implement
clean vehicle and sustainable freight programs as well as
energy efficiency upgrades.

   Okay. Thank you. Next question?

MS. LUND: So again from Ilonka Zlater,
"Congratulations on creating this incredible tool. I'm at
the Climate Investments Program at CARB and I can think of
at least a dozen people across agencies in the various
investment programs that I'm going to contact directly, to
make sure they know about this. I would be interested in knowing who your team has been interacting with at the different investment agencies. Please follow up with me (indiscernible).

MS. DOUGMAN: Thank you. We'll be happy to do that and we will be happy to continue. We can send you the contacts we've been working with and we're happy to work with additional people at the various agencies.

MS. LUND: And there's Pam jumping up and down. (Laughter.)

MS. DOUGMAN: Okay. Any more questions? Any questions? Okay. So then just to close let's see here. So for those who may have joined a little late, I'm just going to walk through again how do you find this?

So if you're at the California Energy Commission's homepage and then you go to the Barriers Study link here, and then from this page we have added links to the Energy Equity Indicators Interactive Web Maps. And then from this page, we have the story map. We have a link to the Low-Income Barrier Study. We have a story map, that's the interactive map we've been walking through for this webinar. And then we have the Tracking Progress Report. That's a PDF with more detail.

And then we have, this is the interactive app
where you can turn the layers off and on. And then you can view this in a larger map.

So that's a summary of how to find this, so you can continue to explore. In particular, I'm a big fan of the widgets. I think they're really, really great thanks to Travis for that.

And so we are accepting written comments. Please submit your written comments by July 11th by 5:00 p.m. And instructions for submitting written comments are in the notice.

So there's one other page that I should highlight for you and this is the location of the notice. So this is part of 2018 IEPR Update, so there is you can find links to this information also from the web page for the documents for the 2018 IEPR Update. So here we are on the documents for the 2018 IEPR Update and then if you click on June 27th and that's for this webinar, then you'll see you can submit comments by clicking here. You can look at the notice and then there's instructions there to explain how to submit comments and the due date. And then we also have a link to the Tracking Progress.

So thank you for participating and that concludes our webinar. Thank you.

(Whereupon, at 11:28 a.m., the webinar was adjourned)

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REPORTER’S CERTIFICATE

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

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

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IN WITNESS WHEREOF, I have hereunto set my hand this 12th day of July, 2018.

_________________
Myra Severtson
Certified Transcriber
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