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STATE OF NEW JERSEY
NEW JERSEY CLEAN AIR COUNCIL
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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IN RE :
Zero Emission Vehicles :
Clearing the Air :
-----x

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Environmental Protection
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11 ROBERT CAMPBELL

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13 JOSEPH CONSTANCE

14 MARC DEBLASIO

15 ALLEN WESTON

16 ANDREW MCNALLY

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1 MS. BLUHM: Good morning, everyone.
2 If I could ask you guys to find your seats.
3 Thank you for joining us. I'm Sara Bluhm, Chair
4 of the Clean Air Council, and we're excited to
5 have you all here with us today as we explore the
6 future of electric vehicles in the state. This
7 is not a new topic for the Clean Air Council.

8 In 2014, we first started exploring
9 this, and looked at the change in market place
10 and we were able to recommend strategies then, to
11 several of them acted upon, but as things keep
12 evolving, and as there is more of an emphasis in
13 this area, we thought it was timely to go back
14 and revisit that topic, especially with the
15 Volkswagon settlement and other policy decisions
16 being made related to this and see what we would
17 could be doing as the state continues to look
18 into these programs, and it was a lot more
19 interesting than air toxics, no offense to
20 anyone.

21 But as technology and shopping
22 patterns continue to change, we thought that we
23 would explore this, and looking at how New Jersey
24 has about 15,000 electric vehicles right now and
25 we need to get about 250,000 in the next few

1 years, really looking at what are some of those
2 areas but also looking at some of the emerging
3 trends, looking at other technological advances
4 that are going to be coming down the pike.

5 I was watching Daniel Tiger with my
6 daughter this morning and I can't help but think
7 that she's going to come to expect that she steps
8 out side and the trolley pulls up and she says
9 take me here, so that may be coming before she
10 can drive, but right now we really are at a
11 critical juncture where we can help plan for some
12 of the future looking at our infrastructure as we
13 start to advance both redevelopment of our urban
14 core as well as taking advantage of where we are
15 located on the I95 corridor too.

16 But for the Clean Air Council,
17 really, I think the most important part of it is
18 transportation makes up the most important part
19 of our emissions, and while we've made
20 significant strides in stationary forces,
21 handling that transportation portion is really
22 what we're focusing on in order to improve our
23 air quality. And so with that, looking at how
24 electric vehicles can help with those shifts in
25 emissions and being able to reduce them and where

1 we're going moving forward.

2 I'll be bringing up our hearing
3 chair, Mike Egenton. I'd also like to recognize
4 his cochair, Dr. Bielory, have put together a
5 fabulous program for you today, but being able to
6 focus today's topic on future recommendations for
7 both the commissioner and DEP, but being able to
8 look at the affordability, the infrastructure
9 needed, the awareness, the equity, and then also
10 looking at all of the different segments of the
11 market place, too.

12 That's what we're focusing on, and
13 I'm excited today because I think we have a broad
14 range of speakers to tackle those different
15 areas, and I definitely encourage you to stick
16 around this afternoon too. I think that there
17 are many different facets of state government
18 that are also working on this area, and we're
19 excited to be able to have a panel this afternoon
20 that also addresses what different departments
21 and agencies have roles to play within this
22 market place too.

23 And then, I'm not going to steal the
24 thunder for Michael, but we will also have public
25 input too. I would like to welcome up Michael

1 Egenton for an overview of the hearing, and thank
2 you all for coming out.

3 MR. EGENTON: Thank you. Good
4 morning, everyone. Thank you for attending the
5 Clean Air Council's public hearing. I'm Michael
6 Egenton. I'm with the New Jersey State Chamber
7 of Commerce and one of the members on the Clean
8 Air Council. Before I go over the protocol and
9 procedure for today, I wanted to take the
10 opportunity for the other fellow Clean Air
11 Council members to identify themselves.

12 Sara was just up at the podium. She
13 is the current chair of the Clean Air Council,
14 and Dr. Len Bielory, also one of our cochairs for
15 today's hearing. Allen, why don't you introduce
16 yourself and we'll go around for the other
17 council members.

18 MR. WESTON: Sure. Allen Weston,
19 the county representative.

20 MS. CONNOLLY: Maria Connolly, I
21 represent the Department of Community Affairs.

22 MR. VALERI: John Valeri, I'm a
23 public member. I'm vice chair of the council.

24 MR. DEBLASIO: Marc DeBlasio, public
25 member.

1 MR. HANNA: Toby Hanna, representing
2 the New Jersey Society of Professional Engineers.

3 DR. OPIEKUN: Richard Opiekun,
4 representing the New Jersey Department of Health.

5 MR. ROSS: Scott Ross, public
6 member.

7 MR. CAMPBELL: Bob Campbell, public
8 member.

9 MR. WEBER: Bob Weber. I represent
10 Labor for the State of New Jersey AFLCIO.

11 MR. EGENTON: Thank you, fellow
12 council members. And as Sara said, we have an
13 exciting line up today, very timely topic. The
14 new administration, Governor Murphy's
15 administration, as well as our legislature, are
16 very interested in the topic. Sara and I
17 typically work over at the State House in the
18 various legislative committees.

19 We spend a lot of time in front of
20 the Senate and Assembly Environment and Energy
21 Committees. And interestingly, if you just look
22 at the nearly over two dozen bills are making
23 their way through the state legislature that
24 would accelerate the adoption of electric
25 vehicles and charging infrastructure throughout

1 the state. Some of them include setting goals
2 for the adoption of electric vehicles and
3 charging infrastructure, establishing some kind
4 of an incentive program, clarifying the roles of
5 our electric utility, direct installation of fast
6 charges at service areas on New Jersey toll
7 roads, authorizing the use of electric school
8 buses, requiring homeowners associations to allow
9 the installation of EV.

10 I mean, just countless number of
11 bills. It's on the topic and minds of our
12 legislative leaders as well as the
13 administration, so a really good timely topic as
14 I said. So to real briefly go over the course of
15 the day and some of the protocols, please, out of
16 respect of the speakers and the other attendees,
17 if you have to take a phone call, please take it
18 outside.

19 If you can, mute your phone in
20 silent mode so we can give the due respect to our
21 invited speakers. I also want to take the
22 opportunity, we couldn't have put this hearing
23 together without the diligent work of the DEP
24 staff and I certainly want to recognize them,
25 both Peg Hanna, Andrew Friedman and Heidi Jones,

1 as well as our Clean Air Council Chair, Sara
2 Bluhm, and my cochair, Dr. Bielory. As I said, I
3 think we have a really exciting line up today.
4 Rest room facilities are located around the
5 corner from this room out the back door and to
6 the left.

7 We will be breaking for lunch at
8 11:30. The invited speakers, as well as the
9 council members, will have lunch at that time.
10 We're going to be a little flexible, although we
11 have an hour allocated, it depends on how we make
12 out here today at the hearing. For those who are
13 attending the hearing, there are places as well
14 as the DEP cafeteria, along West and East State
15 Street also along Warren Street if you choose to
16 have lunch.

17 The format of this hearing is that
18 of a formal presentation given that we reached
19 out to invited speakers. The primary goal of the
20 meeting today is to take input from those
21 speakers, and the Clean Air Council will be
22 developing recommendations that will be issued in
23 a report that will be presented to the
24 Commissioner here at DEP.

25 Each speaker has a set limit time to

1 present an overview of the issue from their stand
2 point of the field of their expertise and the
3 organization they represent. Questions may only
4 be presented by council members during the
5 hearing due to the number of speakers we have
6 today on the agenda and to be respectful of our
7 time constraints.

8 Public attendees are encouraged to
9 provide testimony, following the invited speaker
10 segment today. If you plan to address the
11 council, I would ask that you please sign in at
12 the list near the door where you entered and we
13 will take that into consideration. For those
14 individuals, we may have to limit your comments
15 to five minutes.

16 You may also provide written
17 comments to the council after the hearing via
18 email and we would ask you respectfully to have
19 those in by the end of the month because we have
20 a lot of work ahead of ourselves to put the
21 report together, as I said, to deliver to the
22 commissioner.

23 And lastly, we do have a
24 stenographer, and I want to thank you for being
25 here taking notes and there will be an official

1 transcript of the hearing that will be made
2 available on the Clean Air Council web site after
3 the hearing, and that is
4 www.state.nj.us/dep/cleanair.

5 And with that, we will wait
6 momentarily for the arrival for the commissioner
7 who will kick things off for the hearing. Thank
8 you very much for attending and appreciate
9 everyone's engagement.

10 (Discussion held off the record.)

11 MR. EGENTON: If everyone, for those
12 who haven't taken your seats yet, please take
13 your seats. We have our first invited speaker
14 and we're honored to have DEP Commissioner
15 Catherine McCabe here this morning to present and
16 kick off remarks and just a real brief
17 introduction of the commissioner.

18 She has a very illustrious
19 background with EPA and she can probably let you
20 know more in detail about that, but again, we're
21 very happy to have the commissioner here and of
22 course the Clean Air Council. With that,
23 Commissioner, we'd like for you to kick things
24 off. Thank you.

25 (APPLAUSE)

1 MS. MCCABE: So for technical
2 correction purposes, I should mention that I'm
3 the Acting Commissioner.

4 MR. EGENTON: I didn't want to do
5 that out of respect.

6 MS. MCCABE: Still waiting and
7 hoping to be confirmed but happy to be of service
8 to all of you and to the public and to the
9 department in the meantime. But I'd like to
10 thank primarily the members of the Clean Air
11 Council for inviting me, thank you, to provide
12 the opening remarks at your first, at my first
13 council meeting, certainly not yours.

14 And I'd like to acknowledge Sara
15 Bluhm, the council chair, John Valeri, the
16 council vice chair, I understand. Michael
17 Egenton, today's hearing chair, that would be
18 you, thank you, and Dr. Bielory, welcome, thank
19 you for coming to cochair this. So I also want
20 to thank the speakers.

21 I understand there's going to be
22 quite a number of really good speakers today,
23 including representatives from New Jersey
24 municipalities and state agencies, universities,
25 planning organizations, research institutions and

1 New Jersey businesses. Are you all here? I see
2 a full room. I love to see that level of
3 interest. So you, the Clean Air Council, have
4 advised my predecessors over the years on a wide
5 range of important issues and I look forward to
6 receiving your advice as well.

7 I understand that some of the issues
8 that you've advised on so far include power plant
9 pollution, something which I am extremely
10 familiar with from my career at EPA. Interstate
11 transport, which I'm also well acquainted with
12 and air toxics and mobile sources and impacts on
13 climate change. Climate change, I said it loud,
14 I said it proud.

15 I have never stopped saying it.
16 Even in the beginning of last year, my duties
17 called me to be the acting administrator of EPA
18 for the first month of the transition to the new
19 administration. We said climate change loud, and
20 we said it proud. It's real and we need to
21 address it, so I look forward to your advice, to
22 all of your advice on helping us figure out how
23 to do that.

24 And particularly, here in New
25 Jersey, we've got the issue of transportation to

1 address, so we look forward to having the benefit
2 of your critical thinking on that. I'm not quite
3 sure whether we have all of the -- speakers where
4 are you? Raise your hands. Great. Thank you
5 all for coming. And members of the public, who
6 have come to give us comment? Thank you for
7 coming. Really much appreciate it.

8 So I welcome you too, audience
9 members, and everyone is looking forward to
10 hearing what you have to say during the open
11 public comment period. So as I understand, the
12 background here, at the 2014 public hearing, the
13 Clean Air Council explored the relationship
14 between alternative transportation strategies and
15 air quality.

16 And given the increase in electric
17 vehicle availability that we've had since then
18 and the success of the It Pays to Plug In
19 Workplace Charging Grants Program, it's
20 appropriate this time to revisit the
21 recommendations from the 2014 hearing with a
22 particular focus on zero emission vehicles.

23 So I think you all know, I don't
24 need to tell you that transportation is the
25 largest source of ozone precursors in New Jersey

1 and nearly half of our greenhouse gas emissions,
2 at this point, come from the transportation
3 sector. And that also means that more than a
4 quarter of the state's particular pollution comes
5 from the transportation sector which is really
6 critical for public health, particularly in those
7 communities, often typically disadvantaged
8 communities, that have more exposure than others.

9 So it's clear that our current
10 reliance on fossil fuel transportation is a
11 threat, not only to air quality and to public
12 health, but also to our climate to keeping a
13 healthy climate that we all need to keep for the
14 generations that will follow us. And in the
15 past, the stationary sources like power plants
16 and industrial smoke stacks, which I spent much
17 of my life and career dealing with, were the main
18 sources of air pollution in New Jersey.

19 Just as a side note, one of the jobs
20 that I've had over the years was working for the
21 Department of Justice. I did that for over 20
22 years, and my last job there before I left to go
23 over to EPA, was to run the litigation initiative
24 that the Justice Department did for EPA to invoke
25 the new source review provisions of the Clean Air

1 Act to crack on those mostly Midwest power plants
2 that load quite a lot of dirty air on us.

3 And I will always be very proud to
4 have had a part in getting successful reductions
5 of millions of times of NOx and particularly
6 they're well controlled now, so ozone is what
7 we're still tending with. Now, while we continue
8 to reduce the emissions from stationary sources,
9 we really need to turn our sites now to the
10 transportation sector, and zero emission vehicles
11 are a vital part of our clean transportation
12 future as we all recognize.

13 So now we have battery vehicles and
14 plug in electrical hybrid vehicles that are ready
15 for purchase with more choices on the way. I
16 understand today's EVs, and I'm looking forward,
17 hoping we can get one for the Department, offer
18 more than 200 miles of range on a single charge.
19 Does that get us up and down from New Jersey top
20 to bottom? Maybe not quite, but close, if you
21 start in the middle.

22 And they come in a wide range of
23 vehicle types from minivans. I drove one of
24 those when I was carting my three kids and the
25 soccer team around, not to mention the dog, so I

1 understand why people still feel the need to have
2 minivans. It's really an important part of the
3 market and families to have SUVs to accommodate
4 the consumer needs. We now have more than 40
5 models from nearly every major manufacturer and
6 over 800,000 Americans have made the switch to
7 electric transportation which I think is most
8 impressive.

9 But beyond available options for the
10 public, we have now viable and growing markets
11 for the electric transit buses and school buses,
12 electric pick up trucks and delivery trucks and
13 even electric long haul trucks. And all of
14 these, as we all know, contribute quite a bit to
15 the air pollution that our contribute to our
16 climate change, so it's really an exciting time
17 now to be planning for clean electricity as a
18 transportation fuel. So how do we do it?

19 First let's look at where we've
20 been, accomplishments. I'm pleased to report
21 that New Jersey has a site of measures that are
22 currently in place to encourage the use of
23 electric vehicles, and having only recently moved
24 to New Jersey myself, I was really glad to hear
25 these because I got my husband to give me as a

1 Christmas gift the promise that, yes, our next
2 family car can be an electric vehicle and we do
3 need to know, however, where we are going to be
4 able to plug in and drive to.

5 So several of the initiatives that
6 have already been undertaken implemented previous
7 recommendations from the council. I understand
8 that in June 2016, in collaboration with the
9 Board of Public Utilities, DEP launched the It
10 Pays to Plug In Workplace Charging Grant Program,
11 and the program has been very successful,
12 approving nearly \$850,000 so far to fund 186
13 charging stations throughout the state.

14 Now, It Pays to Plug In, and most of
15 you probably know, has exhausted its initial
16 funding, but there's still a lot of demand out
17 there. It has a waiting list of more than half a
18 million dollars worth of projects that want to
19 get off the ground. So in 2017, DEP received
20 preliminary approval, federal grant totaling
21 3.6 million dollars in EV chargers for
22 communities and work places and along the
23 highways.

24 So looking forward to ramping up the
25 state when I get my husband to buy me that

1 electric vehicle. So those grants will fund
2 about 570 additional chargers, and you also all
3 probably know, New Jersey is one of nine states
4 that adopted California's zero emissions vehicle
5 standard which requires auto makers to deliver
6 for sale an increasing number of battery electric
7 vehicles and plug in hybrids over time.

8 And you probably heard, it was in
9 the news, that Governor Murphy last week
10 announced that New Jersey will sign the ZEV
11 Memorandum of Understanding joining the other
12 California car states in developing and
13 implementing a wide range of strategies to
14 increase our EV sales here in New Jersey.

15 And we all know that this is
16 particularly critical at a time when the federal
17 government, of course, seems to be in reverse
18 gear working to roll back the National Vehicle
19 Emission Standards which we will fight as hard as
20 we can from our pulpit here in New Jersey. Our
21 state sale's tax exemption for zero emission
22 vehicles eliminates the seven percent sales tax
23 by purchasing an EV. My husband will be very
24 glad to hear this.

25 And the Department of Community

1 Affairs streamlined a permitting process for home
2 chargers making it faster and easier for EV
3 chargers to have a charger installed at home.
4 We're living in an apartment, but one of my first
5 questions when apartment hunting was, do you have
6 a place to plug in. And if you don't, would you
7 be amenable to installing one. And the answer
8 was yes.

9 So I live in downtown Princeton now.
10 I came from -- my last days were in New York City
11 and I like to walk to things a lot and I love
12 walkability, so if we can move this forward and I
13 can get chargers installed down there in downtown
14 Princeton, that would be a great step forward for
15 me to be able to drive the electric vehicle and
16 New Jersey's EV owners, I understand, are also
17 exempted from emission testing requirements.

18 You won't have to go to the DMV for
19 that test anymore. And this was news to me, for
20 off peak toll discounts on the New Jersey
21 Turnpike and Garden State Parkway. I'd love to
22 move that up to unpeaked discounts. These
23 measures are all consistent with the
24 recommendations that the council gave us in 2014
25 reports. Thank you all for your work on that.

1 And in 2016, DEP created a
2 recognition program to honor the employees that
3 have made their work places EV ready by
4 installing charging stations for employees.
5 Proud to say we did have one in our office in New
6 York for EPA, used it all the time. I know how
7 to plug that thing in and unplug it. You have to
8 remember to do that. So New Jersey signed on as
9 a beneficiary.

10 I know you all know this too, to the
11 Volkswagon settlement and that will bring us
12 72.2 million dollars into the state for clean
13 vehicle projects that will reduce the NOx
14 emissions, and under the settlement, up to
15 15 percent of those are used for light duty EV
16 charging infrastructure and we intend to use that
17 full 15 percent for that purpose.

18 EV registrations in the state
19 increased from about 520 in 2011 to nearly 16,000
20 in 2017, so the public is with us. There's
21 demand. There's interest here, and I think
22 that's really impressive market expansion in only
23 six years. Our network of charging stations is
24 also growing. New Jersey has 517 public charge
25 points at 220 locations. Note that, husband.

1 That includes a network of DC fast
2 charging stations with 102 of those at 42
3 locations, so that means that about 95 percent of
4 the state, maybe not quite all the way to the
5 border, falls within a 25 mile radius of a fast
6 charger which is really great news, so we're off
7 to a good start here. The Federal Highway
8 Administration has designated five New Jersey
9 highways as electric vehicle chargers where fast
10 chargers allow worry free electric travel.

11 And those highways hook up with EV
12 corridors in neighboring states and throughout
13 the northeast and mid Atlantic region. I'm very
14 glad to hear this, so I can visit my kids in
15 Boston and Washington and go home to my family in
16 upstate New York driving my electric car. But
17 there are still challenges ahead that need to be
18 addressed to transform New Jersey's
19 transportation center and EV only accounts of one
20 percent of all the light duty vehicles in New
21 Jersey now, so we have a long way to go.

22 And of course they do now have
23 generally have a higher sticker price than
24 comparable conventional vehicles. Therefore, the
25 husband took some convincing so we need to do

1 more to build that network of the charging
2 infrastructure in order to reduce range anxiety,
3 which my husband has, and to educate consumers on
4 the benefit of EVs. We require more education.
5 I have been working on that for years. We need
6 to consider the opportunities provided by the new
7 generation of electric trucks and buses and other
8 medium duty and heavy duty vehicles.

9 And really importantly, we need to
10 ensure that poor and minority communities, which
11 are overburdened already by environmental
12 pollution, particularly from all of those heavy
13 duty vehicles, if you've ever visited
14 neighborhoods around the ports, share
15 meaningfully in the benefits of transportation.
16 So that's the report on where we've been and
17 where we'd like to go.

18 And I'd like to thank the Clean Air
19 Council again for conducting this hearing and
20 thank all the speakers and the audience members
21 who came here today to provide us with your
22 perspectives. It's a vital issue. It's a timely
23 issue. It's our future, so I look forward to
24 today's proceedings and to seeing what comes out
25 of them and I look forward to driving that

1 electrical vehicle down New Jersey's highways.

2 Thank you all.

3 (APPLAUSE)

4 MR. EGENTON: Thank you,
5 Commissioner. We greatly appreciate your
6 valuable input, and we will be working hard on
7 our report that we'll be issuing to you in July.
8 And I wanted to say, before I gave some
9 acknowledgments to the DEP staff here, you've
10 been very helpful to us in organizing today's
11 hearing so we certainly appreciate your time and
12 effort.

13 MS. MCCABE: Well, thank you very
14 much. I wish I could stay to hear it. Paul
15 promised he's going to give a really good and
16 very detailed report. I hope you brought your
17 note taking. Thank you all. Good luck.

18 MR. EGENTON: With that, we will
19 continue. We will start with our second speaker
20 which will be Brian Platt. He's acting business
21 administrator, Office of Innovation at the Jersey
22 City Mayor's Office with the focus of Urban
23 Opportunities for Electric Vehicles. And please,
24 I want to remind everyone, my colleague, Allen
25 Weston, has time cards that he will show each

1 speaker because, again, we want to keep to the
2 time, so we appreciate that. So with that,
3 Brian, please kick off things.

4 MR. PLATT: Thank you very much.
5 Thank you to members of the Clean Air Council,
6 Acting Commissioner McCabe, all of the guests
7 here, all of the speakers. This is very exciting
8 for us in Jersey City. We have just begun our
9 journey towards transitioning from your typical
10 fossil fuels to electric power vehicles in the
11 city and there were a couple of key
12 considerations that I want to talk about today
13 that I think are important for us all of us to
14 know, both in the room and in the council.

15 So in a city, as Acting Commissioner
16 McCabe mentioned a little bit before, not
17 everybody has a dedicated driveway or parking
18 space, so it's very difficult, if you want to own
19 a private electric vehicle, to find charging
20 apparatus infrastructure for that. So in Jersey
21 City, it's even more exacerbated by the fact that
22 we have multi family brown stones that have no
23 driveways at all and all street parking.

24 But also we have a lot of very tall
25 apartment buildings, 50, 60, 70 story apartment

1 buildings, some of them with parking, some of
2 them without, not enough parking. But either
3 way, it's hard for those people, who want to get
4 an electric vehicle, to find a place to charge
5 it. So what we're doing is we actually are in
6 the middle of an RFP process now. We've received
7 proposals, and we're evaluating them at this
8 moment.

9 We are seeking to install publically
10 accessible electric vehicle charging
11 infrastructure throughout the city key locations,
12 and we're going to take it slow. We're not going
13 to install this everywhere all at once, but it's
14 sort of, we're going to try and meet the supply
15 and demand and match it appropriately, so what we
16 hear a lot from our residents is they're
17 considering buying an electric vehicle and they
18 won't until they know they can charge it.

19 So we're that hoping there are some
20 vehicles that are already there in the streets
21 that we can help service, but also that it will
22 induce and entice more people to buy them once
23 they walk down the street every day and see a
24 charging station a few blocks from their home.
25 And from the feedback that we've gathered, it

1 also seems like those electric vehicles for
2 potential electric vehicle owners in the cities
3 don't necessarily need a charging station in
4 front of their house.

5 It can be a few blocks away. It can
6 be sort of a neighborhood based approach, so we
7 don't need to totally cover every block of
8 electric vehicle charging infrastructure. And
9 also we don't expect everyone to get one right
10 away, so it's sort of a slow process. But the
11 other side of this for us, while the second piece
12 of that is that in an effort to demonstrate our
13 value towards this sort of thing, we have created
14 our first ever electric vehicle parking area
15 ourself.

16 So what we did is, it's a new
17 parking zone and we have one test location in the
18 city right now. It has nine charging stations,
19 and eight of them are dual port. One of them is
20 a single port DC fast charge. And so in those
21 stations, if you have an electrical vehicle and
22 it's plugged in, it can park there at all times.

23 There's no hourly limit, there's no
24 extra permit you need, there's no fee you have to
25 pay on our end. This was the test version of

1 this for us. It's our first time doing this, so
2 we wanted to make it as easy as possible for
3 those who have electric vehicles to find that
4 charging space and just know that there's
5 something there that they don't have to worry
6 about it. They can just plug in and charge. The
7 stations themselves were installed by a private
8 developer who did it on their own. They cover
9 the entire cost of it.

10 It was a partnership between us and
11 them, and so they managed the charging, the
12 maintenance of the structures and also the cost
13 of the energy, so they take care of all of that.
14 Moving forward, it's likely that that will change
15 once we spread that throughout the city, but we
16 wanted to kind of show good faith towards this
17 process.

18 So the other side of things, there's
19 the private ownership side and then there's, for
20 us, there's the public use of electric vehicles,
21 so thinking about how we can transition our city
22 fleet to electric vehicles, and these same
23 electric EV charging stations that we place
24 around the city will also, under the same
25 contract, be placing them at key city municipal

1 offices and facilities.

2 So we can put one in our Public
3 Works facility, at our City Hall facility, so we
4 can both encourage our employees as a city, but
5 also to purchase electric vehicles, but also we
6 can start to allow some of our own municipal
7 vehicle transition to electric, and one of the
8 priorities for us, one of the most interesting
9 municipal vehicle types that we're targeting
10 right now are garbage trucks, so when you think
11 about garbage trucks, these are heavy duty
12 vehicles.

13 They arguably produce the most
14 amount of harmful pollution in the air than any
15 other vehicle on our streets. We have a lot of
16 these that are very old, and sometimes the
17 maintenance is at a level of a regular passenger
18 car and they're driving throughout every
19 neighborhood of the city all day long.

20 So if there is one way, the way we
21 see it, if there's one single way to make the
22 biggest impact of reducing harmful emissions into
23 the atmosphere and lowering the exposure of the
24 pollutants to our residents, it's the garbage
25 trucks and the other heavy duty vehicles.

1 So we've submitted an application
2 for the VW settlement monies to the DEP and to
3 the state hoping this right here will help our
4 chances a little bit, but we're thinking that it
5 may be a more complicated process. We're
6 thinking we can start with six. If we were to
7 cover our whole city full-time, it would probably
8 be around 20 to 25 garbage trucks, but it's the
9 new technology.

10 There are not a lot of cities that
11 are doing this. We would love to be the pioneer.
12 We're ready for it. We're excited about it.
13 We've thought a lot about this and we see a big
14 benefit to our residents, a big reduction in the
15 pollution into our neighborhoods and also we see
16 a very long term benefit, lower maintenance
17 costs, quieter operations.

18 There's so many benefits. The only
19 down size is the cost of these things. It can be
20 a lot more expensive for the initial purchase,
21 but the benefits kind of come down the road. I
22 don't know if the council has any questions about
23 some of the things we're doing here.

24 MR. EGENTON: Any questions from our
25 fellow council members?

1 MR. HANNA: Thanks, Brian. On the
2 citing of the parking zone, what were your
3 decisions on that? Is that residential area? Is
4 that the business district?

5 MR. PLATT: It's a residential area
6 and it's in close proximity to the PATH, our
7 local subway system to New York City, so it's
8 walking distance to mass transit. It's very
9 close to mass transit. It's also very close to
10 the downtown business district, so a lot of stuff
11 there.

12 A lot of residents who live in the
13 building where these stations are installed
14 don't -- they come to the building and don't have
15 a car, so there is also some electric car
16 sharing, which is another interesting aspect to
17 the city, but generally, yeah, it's sort of in a
18 residential area that's near commercial
19 opportunities.

20 MR. VALERI: I'm just curious, you
21 mentioned in the beginning, doing an RFP process
22 going on where you have some locations, where
23 these charging stations are going, parking areas.
24 Are you leading into the entities that you're
25 requesting proposals from to do your planning

1 where these charging stations and parking
2 stations are going, or are you directing them?
3 I'm curious.

4 MR. PLATT: It's going to be a
5 collaborative process on that part. We're not
6 asking them to tell us where to put the stations.
7 We're seeking some input from the community and
8 from the residents to tell us where the most
9 people who own these vehicles now or who want to
10 own them live so we'll target those areas first.

11 We sort of have a good feel where
12 structurally they're going to fit in the city.
13 There's not a lot of large sidewalks and large
14 street areas that we can put these things in
15 general. They're obviously going to give us the
16 expertise on the technical aspects of where we
17 can set these things, so it's going to be back
18 and forth.

19 At this point, we're probably not
20 going to do a study just because we know that
21 it's less about who owns them now and more about
22 trying to inspire more people to get them, so
23 there may not be good data that comes out of that
24 thing.

25 MS. BLUHM: I have a house in a

1 residential neighborhood and I'm not plugging
2 into my Victorian home either, but looking at how
3 are you structuring this in terms of where you
4 will put the station so that if I did want to
5 pull up a block away or something to plug in an
6 electric car, is it more private market place or
7 is something that the city is owning the
8 infrastructure on?

9 MR. PLATT: We're going to own the
10 infrastructure, but there are great apps out
11 there that show you where available stations are.
12 Charge One is an example that gets talked about a
13 lot. It's one of those things you pull an app up
14 on your phone.

15 You can see every open space in the
16 city, but, yeah, the idea is we're going to put
17 them in close proximity to the places you want to
18 come if you're visiting, but also for our
19 residents as well.

20 MS. BLUHM: Did you look at your
21 demographics at all in terms of ip people
22 actually want to buy cars. I've tried to park in
23 Jersey City, so I know people have cars there.

24 MR. PLATT: That's a good point. In
25 Jersey City we have the latest census data says

1 40 percent of homes that do not own a car, and
2 it's another 20 or 30 or so that only have one
3 car, and we also have anecdotal information that
4 says a lot of those people that own cars don't
5 use them. They don't use them for work.

6 They're getting on the PATH train,
7 they're getting on a regular train, getting on a
8 bus and going to work that way, so they're more
9 recreational use. Hence, why we're not going to
10 install too many of these too quickly. We do
11 know that there are people who really want these
12 and there will be more once they see the stations
13 out, will want to get an electric car.

14 Some people just can't live without
15 a car for either they love cars or they need them
16 for things, so it's just a question of where
17 we're going to put them, not necessarily, if
18 there's a demand for them. There definitely is.

19 MR. EGENTON: Thank you, Brian.
20 Appreciate your input.

21 MR. PLATT: Thank you very much.
22 Appreciate it.

23 (APPLAUSE)

24 MR. EGENTON: Our next speaker is
25 Matt Solomon. And Matt is the transportation

1 program manager for the Northeast States for
2 Coordinated Air Use Management. Otherwise known
3 as NESCAUM, with a focus on Moving Toward Zero
4 Emissions in the Northeast. Matt, thank you for
5 attending.

6 MR. SOLOMON: Thank you for very
7 much for the opportunity. I'm really excited to
8 be here. This is a really exciting time to be
9 working on zero emissions vehicles in the
10 northeast and perhaps no place more so than right
11 here in New Jersey for a number of reasons that
12 we just heard about.

13 It's really a great opportunity for
14 this state to really catch up and make some
15 really great progress for producing greenhouse
16 gas emissions and a number of other environmental
17 goals that we're all here to advance. I'm just
18 going to quickly go through the outline of my
19 presentation. I'm going to tell you a little bit
20 about NESCAUM, where we came from and why we're
21 here, talk a bit about the ZEV program
22 requirements.

23 We heard a bit about the ZEV rule.
24 That's an important context in which a lot of
25 these activities are taking place and talk about

1 what the states collectively have been doing over
2 the past couple of years with New Jersey now very
3 much in the folds to advance these goals, and I'm
4 going to go through a couple of those specific
5 examples from some of our member states.

6 NESCAUM formed in 1967. We're
7 51 years old now, a collaborative effort of the
8 governors of the eight states, New Jersey, New
9 York and the six New England states. We worked
10 together collaboratively on a number of issues
11 where there is a common interest in improving air
12 quality. Among the yearly efforts, were first
13 regional power plant pollution cap reducing
14 mercury population.

15 We're now focusing very strongly in
16 addition to those other areas on zero emission
17 vehicles. We serve as both the technical and
18 policy advisor to the states and we coordinate
19 multi state action in a number of ways and with a
20 number of different clubs, if you will, so the
21 NESCAUM states are, as I said, the eight states,
22 New Jersey up to Maine.

23 We also work with a number of
24 different coalitions or a number of different
25 coalitions on different projects. One of which

1 is the multi state ZEV Task Force which was
2 formed several years ago by the governors MOU,
3 Memorandum of Understanding signed by eight
4 governors in 2013. We've got a ninth governor on
5 board now thankfully. We're very excited to have
6 New Jersey now participating. These governors
7 got together and said, okay, we've got the ZEV
8 rule on the books.

9 We know there's a lot of pieces that
10 need to fall into place in order for this market
11 to really take off, so we know we've got
12 requirements that are going to start to kick in,
13 in the year 2018 binding on the manufacturers.
14 There's a whole bunch of other stuff that could
15 be done to support and accelerate the market
16 growth. So that is what the MOU was designed to
17 get these states on the same page on and start to
18 work in a collaborative way toward advancing
19 these goals.

20 So what are they doing exactly to
21 move this meeting. Acceleration of adoption. I
22 mentioned the ZEV program, the regulation that is
23 written by California and adopted by nine states
24 pursuant to their authority under Section 177 of
25 the Clean Air Act. The long story short,

1 28 percent of the U.S. market now faces the sales
2 requirement for zero emission vehicles. This
3 goes through 2025 and there is an increasing
4 requirement in every year. The requirements are
5 defined in terms of credits.

6 They're linked to total sales so
7 they're proportional to each manufacturer's total
8 sales within any state, but the requirements are
9 not specifically set in terms of cars. This is
10 an important point even though it's technical and
11 kind of in the weeds. We're often asked how many
12 cars is this going to mean on the roads in New
13 Jersey or the other states in any one of these
14 program years, and not to get too far into
15 details.

16 But because the reg is defined in
17 terms of credits, not cars, the number of cars
18 that a manufacturer need to meet its compliance
19 target will vary depending on which models
20 they're selling. Basically, the bigger the
21 battery, whether for a plug in hybrid or for a
22 battery electric vehicle, the more credit you get
23 for a car.

24 So a manufacturer that sells higher
25 credit vehicles, those cars that are getting

1 maybe at the top end of the range where we see
2 200 plus miles, those cars are going to get a lot
3 more credit than some of the first generation
4 leased type vehicles with 80 miles or 100 miles
5 per. So the total number deployed for compliance
6 is going to vary and you can't really put a real
7 fine number together because it is going to
8 depend on the manufacturer's decisions as they go
9 forward over the next five to seven years.

10 So moving on. So the first major
11 step of the governor's MOU was to form a task
12 force. The eight states involved got together
13 and said let's get organized, let's see what we
14 can do to make this thing happen. NESCAUM has
15 been facilitating that task force. It is the
16 work of the states, the nine states involved in
17 the MOU.

18 We have been working closely with a
19 number of stakeholder groups including perhaps,
20 most importantly, the manufacturers recently
21 really stepping up our efforts to engage
22 constructively with dealerships as well
23 throughout the region to see what we could do to
24 really make this happen.

25 As we started to dig in, and in

1 particular, in a series of very intensive
2 conversations and meetings with the OEMs at the
3 outset of this process, we really identified kind
4 of three measures or policy categories that
5 really rose quickly to the top in terms of what
6 supportive or complimentary measures could be put
7 in place to help the manufacturers reach their
8 targets.

9 We realize infrastructure incentives
10 and consumer awareness, I will show you here
11 consumer education and outreach. There's a real
12 need to increase the awareness among the driving
13 public and car buying public, not just of the
14 availability of these vehicles, but the benefits
15 and the positive attributes that many drivers are
16 enjoying.

17 In the past year or so, we've sort
18 of added or bumped up the profile of the fleets
19 and dealerships recognizing that as we get now in
20 this next phase and we are looking now to the
21 2018, 1920 phase of what the actions are really
22 going to be, they're going to move the needle
23 most effectively recognizing that fleets are
24 really a critical component here, not leased
25 because states have a lot of them, and here are

1 the states telling the manufacturers what kind of
2 cars they need to sell.

3 It is incumbent upon the states to
4 do their best to lead by example, so we're
5 focusing on that and finally dealerships in
6 obvious critical length in the car buying
7 process. So starting with infrastructure, there
8 are, we've talked about It Plays to Plug In.
9 It's a fantastic program. Certainly we hope the
10 state will be able to find the resources to keep
11 that going.

12 This is an ongoing challenge in
13 every one of the ZEV states. Clearly this is one
14 of the important distinctions when we're talking
15 about moving to a vehicle that fuels differently,
16 there does need to be charging infrastructure.
17 Exactly how many and exactly where they need to
18 go, they are still moving targets. I think we're
19 still all learning as the market evolves and as
20 we learn more about driving behavior.

21 Where are we right now? We do have
22 some work to do. There's been a huge increase,
23 as we heard just a little bit ago, compared to
24 just a few years ago, where there is basically
25 none. We now are in the hundreds in New Jersey.

1 Unfortunately, we're not looking so great
2 compared to some of states that are really in the
3 lead, and I put this up here recognizing that it
4 may be a little bit uncomfortable but it does
5 demonstrate there is a lot of work to do.

6 I think that's a real opportunity to
7 really make some headway in preparing this
8 market, making it more amenable to the real
9 increase in models in types of ZEVS that we
10 expect to see in coming years. A couple of
11 example programs. Obviously, New Jersey has a
12 good one. Again, It Pays to Plug In is a
13 terrific approach. Some of the other states in
14 the region doing similar things.

15 The details vary of course, and this
16 is only a partial list, but Maryland,
17 Massachusetts, New York and Rhode Island, each
18 have implemented in the past two, three years
19 purchase incentive programs. I'm sorry, programs
20 to incent the installation of ZEV infrastructure,
21 and the details are here at the websites listed
22 for each one. And similarly, purchase
23 incentives.

24 Again, the second one on that list,
25 we know the infrastructure needs to be there for

1 obvious reasons. We're also aware, and it's been
2 talked about today, the initial purchase price is
3 still not yet with the comparable IC vehicle.
4 We're hearing really encouraging signs, the
5 prices of batteries continue to go down. The
6 prices of these cars continue to go down.

7 Just a couple of months ago, Mary
8 Barra, CEO of GM, made some very encouraging
9 remarks about her expectation that not just that
10 electric drivetrains will be installed across a
11 much broader number of their vehicle models, but
12 they expect they're going to be breaking even in
13 the 2020 to 2021 time frame. That's really great
14 news that's reflective of the incredible advances
15 that's been made in battery technology in
16 particular.

17 But the market is moving, the prices
18 are coming down, definitely pointing in the right
19 direction here. Again, a partial list of some of
20 the -- some of the incentive programs that we're
21 really excited about. A couple of them are too
22 new to say exactly to what degree they moved the
23 needle, but we know that clearly purchase price
24 is one of the chief concerns in these programs.

25 But for the Maryland tax credit,

1 which is not too different from New Jersey's, in
2 Connecticut and Massachusetts, New York, those
3 programs are all designed based on the California
4 model. It's a pretty generous incentive, two to
5 \$3,000 per vehicle, so we're really excited about
6 this and it's obviously an important part of this
7 process.

8 The next item, consumer awareness.
9 This chart may be a little hard to read and this
10 is just a sample, one graph that I took from a
11 recent study done by Ken Kurani at UC Davis, one
12 of the sort of preeminent researchers in this
13 field, consumer awareness and customer acceptance
14 of alternative vehicles. I'm pretty sure the
15 data is California specific.

16 What it shows is that despite real
17 growth in the market, despite a heck of a lot of
18 progress on infrastructure, increasing what those
19 of us in the field certainly feel like there's an
20 awful lot more chatter, a lot more buzz, a lot
21 more awareness, but the survey that was
22 conducted, recently reported out just a couple of
23 months ago, from UC Davis is not showing the real
24 increase in consumer awareness that we think we
25 need to see, so that continues to be a problem.

1 Again, customers are going to have a
2 hard time choosing the greener car if they don't
3 know it's available, if they don't know what it
4 is. So what are we doing on that front? Well,
5 we're pretty excited there is a brand new
6 initiative that we just unveiled or officially
7 released a couple weeks ago through the New York
8 National Auto Show, a joint collaborative effort
9 of the auto makers and the states and there's a
10 whole bunch of logos there.

11 I'm sure they're familiar to most of
12 you. The auto associations and our friends from
13 the Alliance are here, global auto makers and our
14 states got together to put a brand neutral EV
15 consumer education campaign in place and this was
16 just unveiled. I'm regretting I didn't put the
17 URL up there on the slide. I will certainly make
18 sure to do that if I have a chance to revise
19 these, but we're very excited.

20 In fact, it is up there in tiny
21 print. Driveelectricus.com. So it's a multi
22 platform, brand neutral campaign. We're working
23 with Edelman Communications who have been doing a
24 lot of the deep research in terms of consumer
25 awareness in how consumers are going to respond

1 to some of these messages. They've come up with
2 what seem to me very clever and hopefully very
3 effective messages. Just a snapshot of some of
4 the campaign.

5 You see they went with the graphic
6 design there, it's not using photographs. It's
7 using art work so we can get away from the brand
8 specific question. It helps us to sort of focus
9 on the attributes and benefits of the technology,
10 let the auto makers focus on why their cars are
11 better than their competitors. Another example,
12 and I'm sorry, I don't know how I'm doing on
13 time.

14 Another example of what we think is
15 an exciting, and so far very effective program to
16 raise awareness, test drives, ride and drives,
17 there are a whole number of ways that you can
18 approach the basic goal of getting new drivers
19 behind the wheel of an electric vehicle. We hear
20 time and again, and a lot of survey data backs up
21 the fact, once consumers get behind the wheel,
22 often times, many of their elusions fall away.

23 Many of their concerns fall away.
24 They realize these are real cars, they're
25 substantial. They're fun to drive and they're

1 not the tin cans that maybe are built up in the
2 mythology or that folks might remember from 20 or
3 30 years ago, so getting customers behind the
4 wheel is really an important element.

5 Massachusetts has been working on a
6 program, I think it's in its third year now
7 called Mass Drive Clean. They've been putting
8 together these test drive events at targeted
9 locations and there's a few different ways
10 they've done it. Farmers markets and public
11 facing events, and some of them are more closely
12 controlled at work places at employers or at
13 corporate campuses.

14 What we're finding is a really,
15 really impressive turn around rate. The group
16 that has been working with Massachusetts reached
17 strategies, has been collecting data, very
18 scrupulously and have been putting together a
19 very solid case, to me, a very impressive case
20 that these programs are very effective at
21 influencing customer opinion and getting folks
22 into dealer show rooms.

23 There's a number here, 12 percent.
24 I want to go back and check. I think that the
25 12.5 percent is only for the subset of those

1 events that I mentioned that are corporate
2 campuses where there is sort of a captive
3 audience. Nevertheless, that number is proving
4 to be robust as they repeat these events and
5 they're really seeing what, to me, is a really
6 incredible turn around rate.

7 12 percent of the people that get in
8 line, sign up, participate in their event at some
9 point within the next six months end up in a
10 dealership purchasing a vehicle. To me, it's a
11 very effective or at least an impressive
12 opportunity and so we certainly are hoping that
13 the states will see opportunities to follow up
14 and build on this type of example as well.

15 Fleets, as I mentioned, a real
16 opportunity to lead by example. We certainly
17 have heard from the manufacturers and not
18 unfairly that as the states are setting these
19 purchase targets to the ZEV regulation, that they
20 really should be doing what they can to make sure
21 that their own fleets are keeping pace.

22 As the number of vehicle models
23 expands, as the type of vehicle segments expands,
24 there will be more opportunities for states to
25 look at these vehicles and get into procuring

1 them in a serious way and not just states of
2 course, but there are ways that states can incent
3 or encourage municipalities and other entities
4 within the state to do the same. So just a
5 couple of examples here. I think this is a
6 picture of the police fleet. They bought a
7 number of I3s.

8 New York City fleet, a thousand of
9 these ahead of schedule, real opportunities
10 there. Obviously, it's shared total fleets in
11 the state. It's not really going to get us to
12 our targets, but it's a helpful and important
13 step to visibility and demonstrating that the
14 states are really committed.

15 The last note, dealerships. As I
16 mentioned, and this is really apparent, this is a
17 critical link in the car buying process.
18 Therefore, dealerships have to be partners here.
19 We absolutely need their support. There has
20 been, I think some mixed messaging and some
21 recent press and perhaps a little bit of
22 unfortunate demonization where the situation is
23 really much more complicated, but clearly there's
24 an opportunity for dealerships to get engaged.

25 What I like to say is that at this

1 moment in time because of the flexibilities that
2 are in the ZEV regulation itself, the number of
3 uncertainties about how many cars are going to
4 sell and exactly where, there's an opportunity
5 for states to compete and for dealerships within
6 each state to compete to be leaders in this
7 field.

8 The ZEV requirements are not going
9 to mean every single dealership across the region
10 has to be selling these number of ZEVs, so
11 there's an opportunity for those that want to
12 step out as leaders to do so and we are seeing
13 increasingly, those manufacturers that recognize
14 the growing market and see the opportunities
15 here, to test drive events with Lincoln, with
16 other state sponsored or utility sponsored
17 events.

18 One example. Quirk Chevy in
19 Massachusetts, I think they're the sales leader
20 in the U.S. now for Chevy Bolts. They're putting
21 up incredible numbers and we have been talking
22 with them and they're telling us, they recognize
23 this is a growing market. They want to be a part
24 of it, so they've crossed that line. This is now
25 a revenue generator for them. They're selling

1 cars, as they always have done, so we think this
2 is a really compelling message and an important
3 message to be communicating to dealerships.

4 Once they hear it and start seeing
5 those cars go out the door, I think their
6 attitude shifts pretty quickly. So continuing to
7 build on that dialogue, to continue to improve
8 our understanding of the concerns from a
9 dealership perspective, these are the current
10 activities of the ZEV task force through the
11 dealerships work group.

12 One example, and it's hard to see
13 the picture in the corner. We were pretty
14 excited to cosponsor a ZEV awareness booth with
15 the greater New York Auto Dealers Association and
16 Con Ed and our partners in New York State, we
17 felt that was a real great example, not just an
18 opportunity to educate a really engaged public
19 already.

20 Folks coming to the auto show are
21 into cars, but also to demonstrate what we can do
22 when we work together with these partners and
23 really try to move the ball forward. And the
24 last one more on dealerships, just another
25 example of a successful state program in

1 Connecticut. We actually have two novel
2 initiatives specific to dealers.

3 One, they have a cash incentive
4 built into their overall incentive that goes
5 directly to dealerships, and a second is they
6 have a dealer recognition program. You can see
7 Governor Malloy there handing an award for the
8 top EV seller in the state in whichever year that
9 was.

10 Again, trying to find ways that we
11 can reduce barriers, work with the dealers, help
12 them to understand that there are real
13 opportunities here. We've heard really great
14 things from the dealerships and the association
15 in Connecticut with these programs have been
16 successful, so I will stop there and happy to
17 take questions.

18 MR. EGENTON: Thank you, Matt. Do
19 we have any questions from council members?

20 MR. HANNA: Thank you. Interested
21 in your take, given all that you've done and know
22 around this topic on electric vehicles versus
23 other technologies, particularly ones that might
24 be further out like hydrogen. Are we picking a
25 winner now too soon? What are we doing to be

1 flexible with infrastructure and investment in
2 the future so as to not give up options down the
3 road?

4 MR. SOLOMON: Those are great
5 questions. I think we're definitely not picking
6 a winner. The ZEV regulation, I didn't talk much
7 about it, perhaps not at all here today, but the
8 ZEV regulation that is in place in New Jersey and
9 the nine other states, does recognize hydrogen
10 fuel cell vehicles as an equally valid zero
11 emission option certainly going forward for the
12 potential that it has both in terms of range and
13 fill time.

14 Those are really kind of the major
15 two, perhaps advantages that fuel cell vehicles
16 still have. The rule, or the way that fuel cell
17 vehicles -- is complex. The present regulation
18 actually does not require fuel cell vehicles to
19 be sold outside of California. There is a pretty
20 strong incentive for manufacturers that are going
21 the fuel cell route to deploy those vehicles
22 within California and there's a really robust
23 demonstration program under way right now.

24 The state of California is putting a
25 lot of money into EV infrastructure. Toyota and

1 Honda and Hyundai are really leading and doing
2 some pretty impressive work in terms of growing
3 the ZEV fleet there. There still definitely is
4 an opportunity for fuel cell vehicles in the
5 northeast. Another, I should have mentioned,
6 another advantage potentially is cold weather
7 performance.

8 Cold weather does impede the life
9 and the performance of the battery electric
10 vehicle. Fuel cell vehicles do real well in the
11 cold. There are real good arguments to keep
12 pushing forward on the technology. The
13 regulation definitely does not pick winners. It
14 allow manufacturers credit for either technology,
15 but it does retain this sort of bias through 2025
16 that really encourages manufacturers to deploy in
17 California.

18 They get credit in other states even
19 if they do that, so we're watching as that
20 happens in California, as lessons are learned and
21 more vehicles are ruled out. Some of our states
22 are really stepping up and taking aggressive
23 measures to get in the lead on hydrogen.
24 Connecticut in particular I think is the most
25 aggressive of our states right now.

1 I think there's still an open RFP
2 for a substantial funding of support for hydrogen
3 stations. There are a couple of stations that
4 opened up in Connecticut and Rhode Island. There
5 is a lot of potential here, but I think it's
6 still obviously very early days in terms of the
7 employment and technology.

8 So I think the reg kind of has a
9 right to regulation, right now in that it lets
10 the market kind of do its thing, let the
11 manufacturers select the strategy that works best
12 for them and accommodates that in terms of how it
13 gives them credit, so I think we're in a good
14 place to keep watching and monitoring that, but
15 we still can't lose focus on continuing to push
16 on the ZEV side and EV side because there's
17 obvious demand there as well.

18 MR. EGENTON: Any other questions?
19 Joe, time for one more.

20 MR. CONSTANCE: Is there an ability
21 for an education or outreach awareness, the
22 municipal governments about fleets? I think an
23 opportunity is lacking in the fleet dispatch, so
24 if there could be some sort of educational
25 awareness to the different fleet purchasers about

1 the bidding processes and RFP processes on how to
2 get those vehicles, I think there is an
3 opportunity for the industry as whole.

4 MR. SOLOMON: I think that's a great
5 point. We've certainly recognized the complexity
6 of that problem through a number of projects
7 we've worked on. I don't believe that there has
8 been a discussion about a fleet specific
9 component within that current outreach campaign,
10 but I certainly can take that back as a team as a
11 suggestion. I think there is a lot to that for
12 sure.

13 DR. OPIEKUN: Are you targeting any
14 of the underserved neighborhoods, any specific
15 campaigns that you're doing there?

16 MR. SOLOMON: That is a real good
17 question. The focus of the campaign that I
18 described is on new vehicle sales. One of the
19 things that we recognize is when new cars come
20 in, the more used vehicles are going to come into
21 the market as well, so there is a time lag
22 obviously, but a propagation throughout fleet
23 that will occur as we introduce increasing
24 numbers at the top end. It's an important issue.
25 I can't tell you that with our outreach campaign,

1 that there's a specific focus on that.

2 MR. EGENTON: Any other questions?
3 Matt, certainly appreciate NESCAUM being here
4 today and the engagement. Thank you for your
5 commentary.

6 (APPLAUSE)

7 MR. EGENTON: We have Melissa Miles,
8 the Environmental Justice Manager, Ironbound
9 Community Corporation with a focus on
10 Electrification for All. Thank you for joining
11 us.

12 MS. MILES: Thank you. Hi. Good
13 morning, everyone. Electrification of vehicles.
14 Yeah, sounds great. I just thought I needed to
15 say that because we are quite literally going
16 down a different road right now. So my name is
17 Melissa Miles and I'm with the Ironbound
18 Community Corporation. For those of you that
19 don't know, the Ironbound is literally the East
20 Ward of Newark.

21 Newark has five wards, and the
22 Ironbound Community Corporation is a 49 year old
23 advocacy and service organization and I'm part of
24 the Environmental Justice and Community
25 Development wing of that organization, so I live

1 there. I live in the Ironbound now, but I grew
2 up in New York, and by the way, my slides have
3 nothing to do with electrification. I just want
4 you to all, myself, to be able to see exactly why
5 it is I do what I do and who it is that I am here
6 on behalf of. I am not here because I'm an
7 expert.

8 I'm here because I spent the last
9 the two years organizing around issues that
10 pertain mainly to air quality in one of the most
11 impacted neighborhoods in New Jersey in that
12 regard. So yeah, I grew up in New York. No one
13 I knew had a car. I actually owned my first car
14 now well into adulthood, even after having lived
15 in New Jersey for over 20 years because I always
16 used mass transit and I think that my community,
17 my story is not completely uncommon.

18 Maybe in other parts of New Jersey
19 it is pretty uncommon to get to adulthood without
20 a car, but not where I live. So yeah, when it
21 comes to electrification, it was pretty much a
22 non issue for me. In Newark we talk a lot about
23 air pollution and I just have to say that cars,
24 you know, never really come up is the main source
25 of our issues, and so electrification doesn't

1 really come up as the solution right, not, at
2 least, electrification of cars.

3 So for me, even air pollution wasn't
4 an issue until I was personally impacted when my
5 son became the first child in my family to be
6 diagnosed with asthma and we live near South
7 Street in Newark which is really a stone's throw
8 from the port. And by that time, I knew that it
9 had to do with the air quality where we live
10 because shortly after another child, a second
11 child in my family who lived a block away was
12 diagnosed with asthma as well.

13 So yeah, cars, not so much our
14 issue, but guess what is? Guess what mobile
15 sources really are contributing to air quality
16 degradation in our community. We can talk about
17 the ships coming into the port. We are not a
18 port adjacent community. We are a port host
19 community. We have, you know, so we have the
20 ships that come into dock and burn bunker fuel
21 while they sit there.

22 We have the trains that literally
23 run behind peoples houses, and of course the
24 trucks that come through our neighborhood and the
25 hundreds and the thousands daily. Guess how many

1 electric ports we have for those trucks in the
2 city of Newark? Zero. None that I know of. The
3 East Ward certainly has none, so even while, you
4 know, there is increasing infrastructure being
5 built to, you know, basically support the goods
6 movement, very little is being done to electrify,
7 you know, and understanding that, you know, sure,
8 power, very expensive.

9 Everyone knows it's pretty much one
10 of the most expensive technologies that we could
11 possibly be looking at, but also one of the most
12 impactful when it comes to air quality in Newark
13 and the entire region. Also, when it comes to
14 the trucks as many of you know, you know, our
15 truck, the Port Authority actually introduced --
16 I should back up a little bit.

17 In addition to being a part of the
18 Ironbound Community Corporation, I also sit on
19 the coalition for healthy ports. That's a
20 Tri-state group that has been working on port
21 issues for 11 years now and really only finally
22 got to the table with the Port Authority in a
23 meaningful way about two years ago.

24 And even now, is coming up, is
25 basically an annoying fly on the ear of an

1 elephant. We are probably annoying at best, but
2 we haven't really seen the type of investment and
3 pollution mitigation that we really need to see
4 for the health and for the impact of people in
5 the community where I live, so we are still
6 talking about, you know, that those type of
7 technologies, particularly when it comes to the
8 trucks, I heard a few references to look at
9 California.

10 No one wanted to do that.
11 California is like Utopia when it comes to
12 lighting, energy efficiency and such, but they
13 are also leading the way in zero emissions ports,
14 and that is definitely the coalition's goal is a
15 zero emissions port and we are so far from it. I
16 don't know how many of you have been into the
17 port. We do port tours. It's kind of like the
18 wild west out there.

19 Everyone is doing their own thing
20 and there really seems to be very little, you
21 know, even from the top down, our port only got
22 three percent of the Port Authority of New York
23 and New Jersey budget. Three to four percent
24 went to the Port of Newark and Elizabeth, so
25 there isn't even the investment from the top,

1 and, you know, at the port, there just isn't --
2 we've gotten a lot of push back around the
3 ability to actually take measures to mitigate air
4 pollution.

5 And so, what I'm getting to, one of
6 the main measures we want to see is a renewed
7 truck fleet. We have some of the oldest dirtiest
8 trucks serving our port, about 14,000 of them a
9 day. We won't go into the '80s and Reagan and
10 basically the changes that happened and
11 regulations around truckers, but they're
12 considered owner operators. And the long and
13 short of it is that many of them are very much
14 underpaid and exploited, and the truck programs
15 that we've seen so far have really relied on the
16 operators to turn over their own truck, to be
17 able to upgrade their own truck or buy a new
18 truck and that is just not possible.

19 You know, we also work very closely
20 with the Teamsters and I can tell you that
21 there's been a lot of exploitation in the
22 industry, particularly because of that with loan
23 programs and such, so you know, we want to see,
24 you know, the Port Authority, we want to see the
25 NJ DEP actually taking a firm stance on this.

1 We gave lots of recommendations to
2 the new governor about the port, and
3 particularly, the truck program, the truck
4 replacement program, I should say, and those are
5 the type of actual measures that would make the
6 most impact in Newark is, you know, truck
7 replacement, plug in stations. There's also all
8 of the equipment that serves the port, that also
9 is, some of it is tier one.

10 We have these ships, these tug
11 boats, you know, those engines never die and, you
12 know, all of this is contributing to air quality
13 issues in the Ironbound. Particularly, we are
14 the closest community to the port. So I would be
15 totally negligent if I came up here and tried to
16 talk to you about cars. Because that's not our
17 primary issue. Now, should other communities in
18 New Jersey really be moving forward in a real way
19 on this? Absolutely.

20 I totally agree with that, but it's
21 not an equitable situation in Newark where we all
22 know, although Newark is one of the most popular
23 states, the most popular city in New Jersey,
24 although it's a state that has billion dollar
25 industries, it's one of the poorest cities

1 economically, so when it comes to electric
2 vehicles, it's going to be even longer before we
3 see, you know, Newarkers being able to benefit
4 from that type of technology, similar to energy
5 efficiency.

6 We talk about energy efficiency
7 program in a city that is primarily renters, we
8 have yet to be able to benefit from those
9 programs, so I would hope that as we talk about
10 electrification, that we're not going to see that
11 same kind of gap in equity as we see with energy
12 efficiency programs and that's something that
13 we're also working on at Ironbound and with our
14 partners, so I think also I have to speak -- I
15 heard reference to waste trucks which is great.

16 I know that there were lots of
17 proposals for that VW money. We also made tons
18 of recommendations, and it would be great to see
19 cities like Jersey City and Newark have their
20 waste fleets, you know, at least their municipal
21 waste fleets turned over and electrified, but
22 Newark also is considered a waste shed. We get
23 waste from all over the region.

24 You know, if you flush your toilet
25 in Montclair, it's probably coming to Newark. If

1 you throw out something in Princeton, it's
2 probably coming to our incinerator, so we also
3 need to be able to, you know, we need that
4 support to be able to pressure these waste
5 facilities to also use newer vehicles and I'm not
6 an expert on how that's done, but that's actually
7 what we need. We have over 30 waste facilities
8 in Newark. Most of them are in the East Ward.

9 They're bringing everything from
10 sludge to metal and they're going by schools and,
11 you know, facilities that serve populations that
12 are sensitive, and you know, this is our battle
13 daily. So, yes, those cars and, you know, the
14 last thing I really want to mention is that even
15 if we talk about electrification. I'm sorry to
16 rain on your parade, we have to remember that the
17 electricity in this state is also generated as a
18 result of fossil fuels, right?

19 And Newark, once again, the
20 Ironbound has a decent chunk of the energy
21 infrastructure in our back yard which is the
22 Newark Energy Center, 625 megawatt generating
23 power plant, also Newark Bay, Cogen, which 150
24 megawatts, all within two miles of, you know, our
25 facilities. And you know, then there's the waste

1 to energy facility, Covanta, so we have a little
2 chunk of that energy infrastructure also
3 contributing in a really real way to the air
4 quality degradation in Newark.

5 I was told that Covanta is actually
6 a major contributor to our air in the region but
7 that's another story. And guess what? All three
8 of those facilities happen to be in their permit
9 renewal period right now, so we're pretty busy.
10 We are definitely the thumb in the dike of the
11 industry in vulnerable neighborhoods, so these
12 are really real issues for us, and I'm sorry that
13 I don't have all the solutions.

14 But you know, I think I'm sure
15 really just to provide that there is another side
16 to this story, and you know, in order to be
17 equitable, in order for these policies to roll
18 out equitably, we really have to consider those
19 sides. Thank you so much. Any questions?

20 (APPLAUSE)

21 MR. EGENTON: Thank you, Melissa.
22 Council members, any questions?

23 DR. BIELORY: If I had to summarize
24 your talk specifically, electrification of the
25 port would be one of their highest priorities,

1 correct?

2 MS. MILES: Absolutely. Along with
3 truck, you know, resources for truckers to be
4 able to replace their old diesel burning trucks
5 and to plug them in, so newer model trucks in
6 places for those trucks to be able to plug in.

7 DR. BIELORY: Thank you very much.

8 MR. EGENTON: Any other questions?
9 Thank you Melissa, for your commentary. Next up
10 we have Mike Hornsby, the Chief Project
11 Development Officer with the New Jersey Board of
12 Public Utilities and Mike is going to focus on
13 the BPU's Electric Vehicle Infrastructure
14 Stakeholder Process. Thank you, Mike. Go ahead.

15 MR. HORNSBY: Just a word about the
16 Office of Policy and Planning where I work. We
17 work on different issues, Microgrids and Energy
18 Resilience Bank, Alternative Fuel Vehicles,
19 Energy Master Plan, RGGI, in collaboration with
20 the DEP here and now Offshore Wind as well. Here
21 is our website. So back in May, the board
22 commissioned a report from the regulatory
23 assistance project with respect to electric
24 vehicles.

25 So the regulatory assistance project

1 posed numerous questions about electric vehicles
2 in terms of policy considerations, so we turned
3 that around and turned that into a stakeholder
4 process at the recommendation of the regulatory
5 assistance process, and that's what this
6 presentation really is about. That whole process
7 that we went through with our stakeholders.

8 So the board said, well, start the
9 process, look at all the issues, both specific
10 issues like rate design, rolling utilities,
11 electric vehicle charging station operators,
12 reselling electricity, and the like, so I
13 prepared a report. I've sent it up the chain and
14 that's under review now. We have a website for
15 our program and an email box to receive comments
16 about that.

17 So what this presentation does is
18 summarizes the results of the stakeholder
19 process, and it really doesn't take the step of
20 providing what our recommendations are. Those
21 are still before the board and they get first
22 crack at that. So after the board review, then
23 we'll have a follow up presentation through our
24 stakeholder process and present those
25 recommendations to you.

1 So in this presentation, I'm going
2 to go quickly through the process that we
3 underwent and spend more time focusing on what
4 the stakeholders told us that we should, what we,
5 the board, and we the state should be doing with
6 respect to electric vehicles. So we held four
7 public meetings, starting in September 2017.

8 There's the first two. Here's the second two.

9 And we had full houses at all of
10 these meetings, representatives from the NGOs,
11 other government agencies, the charging station
12 industry, the electric vehicle OEMs and Academia,
13 and members of the public, so a wide range of
14 participants. So we posed a series of questions
15 to the stakeholders, a total of three different
16 tranches of questions, so we had a so called
17 task one questions, task two questions.

18 A lot of it started out with where
19 are we now, where do we stand right now and where
20 should we go with this whole program. We have a
21 whole graph of task three questions and then
22 moving on to what did the stakeholders tell us
23 that we ought to be doing. Well, and here is the
24 essence of the feedback that we received.

25 So first and foremost, the

1 stakeholders don't want, the electric vehicle
2 charging operators regulated as utilities, and
3 they don't want the charging operators to be
4 considered as reselling electricity. Right now,
5 three of the electric delivery companies have
6 tariffs that say you're not allowed to resell
7 electricity, so are the operators subject to
8 that.

9 And our stakeholders said they
10 should not be subject to that, and in terms of
11 efficiency, the stakeholders told us that the
12 electric vehicles are three times more efficient
13 than conventional gasoline vehicles, and there's
14 a corresponding three times air pollution benefit
15 associated with that as well, so that's pretty
16 compelling numbers.

17 And as Sara pointed out, the bulk of
18 the greenhouse gas emissions in New Jersey come
19 from transportation now, so the singular way for
20 us to address those greenhouse gas emissions is
21 through transportational electrification. And if
22 we are to have this onset of transportation
23 electrification, there must be a corresponding
24 number of charging station opportunities in lock
25 step with the amount of vehicles that we need to

1 put in place.

2 So most of our stakeholders told us,
3 in order to scale electric vehicle
4 infrastructure, we need utility involvement for
5 the most part, and rate council understandably
6 cautioned against that and favored more market
7 base solution understandably. Many of our rate
8 payers told us that utilities are, quote,
9 uniquely qualified to operate in the space of
10 electric vehicles.

11 They know, they grid. They know
12 electricity, they know the systems. They're in
13 the right position to address that, is what they
14 told us. And in terms of building out the
15 charging station infrastructures, there's this
16 question of chicken and the egg. Which comes
17 first. The vehicles or the infrastructure, and
18 the stakeholders told us, well, it's really the
19 chargers have to go first.

20 The chargers and the infrastructure
21 in order to draw out the, say, the customers for
22 electric vehicles and the charging station
23 industry has a number of different segments, such
24 as multi family housing, public charging, work
25 place charging, et cetera, so it's not all one

1 uniform market, but there's different market
2 segments and there's different levels of market
3 competition in each of those segments, but the
4 segments most in need of attention, according to
5 stakeholders are multi unit dwellings and low and
6 moderate communities.

7 For example, if you live in an
8 apartment or a condo and want to charge your
9 electric car, good luck. There's almost no
10 opportunities to do that, so by that measure, the
11 stakeholders telling us these are the areas that
12 you should focus on. Just on a side note, we at
13 the BPU filed a grant application with Department
14 of Energy to establish electric vehicle ride
15 sharing, ride hailing, charging network focused
16 on urban communities and multi family dwellings,
17 and we expect to hear about that award by
18 April 27th, so we're hopeful to get that.

19 Also, DCFC is a direct current fast
20 charging and that's another difficult market, and
21 the stakeholders told us that utility
22 intervention in that space and in the work place
23 segment were also important. So with all of the
24 markets, we were informed that utility invention,
25 and essentially, all markets could be

1 appropriate, primarily with the underserved. And
2 the stakeholders also told us that, yes, given
3 this utility involvement, there ought to be a
4 strong role for the competitive markets, that is,
5 the utilities ought to be contracting with the
6 private markets to the maximum extent that's
7 possible.

8 And one model that we looked at was
9 the so called Charge Ready approach that was
10 pioneered by Southern California, Edison. In
11 that idea, utilities would go past their
12 traditional role. Traditionally, utility role
13 stops at the customer meter and utility would go
14 passed that and the balance of the
15 infrastructure, the panel and the wire, all the
16 way up to, let's call it a stub or a stump upon
17 which the commercial market would bolt on a
18 charging system and operate it going forward.

19 So this approach was viewed as a
20 happy medium, if you will, between the role of
21 the commercial market and the role of the
22 utilities. So we looked at that and the
23 stakeholders weighed in and said yes, that's a
24 possibility as well. So they called this the
25 Charge Ready or Make Ready approach.

1 Stakeholders told us the utilities
2 should operate managed charging programs. The
3 conventional situation is someone drives their
4 electric car home from work, plugs it in at say
5 six p.m., just at a time of peak electric demand,
6 so the EVs are adding peak to the peak, so that
7 is a worst case situation with respect to adding
8 load onto the grid that will result in say
9 failure of the pole mounted transformer as a
10 first step and require other utility upgrades.

11 So that's a situation that may come
12 eventually, but through a managed charging
13 program, that can be deferred and avoided. And
14 so how do you deal with that? Well, one way to
15 deal with this so called time of use rates
16 whereby PSE and G has one right now. It's called
17 RLM, Residential Load Management. The idea is
18 where power is cheaper at night off peak and it's
19 more expensive on peak.

20 So the idea is to incent people to
21 charge their vehicles at night when power is
22 cheap, and the stakeholders told us that that is
23 critically important because what it does is it
24 makes greater use of the utility assets that are
25 already bought and paid for. So by doing that,

1 it provides benefits, not just to EV drivers, but
2 all rate payers, so their recommendation is,
3 fully embrace that concept to provide this
4 ratepayer benefit of off peak charging.

5 So having said that, there's a whole
6 raft of different ways you can shift people to
7 off peak charging. There's so called secondary
8 meters, smart meters, whole house time of use,
9 electric vehicle only time of use, and using the
10 charging stations themselves to measure electric
11 use, using the vehicles to measure electric use
12 and this question of software versus hardware.

13 So there was a stroke consensus that
14 utilities ought to manage charging but there was
15 not a consensus as to how they ought to do that,
16 so that's still, I would say, a work in progress.
17 And again, to put the main emphasis on it,
18 managed charging can bring economic benefits to
19 all rate payers, so that was one of the key
20 takeaways for us. With direct current fast
21 chargers they are generally located along
22 interstates and major highways.

23 They're a challenge from a
24 commercial operation standpoint, in that, they're
25 not really used all that much because there's not

1 that many EVs on the road. Yet, when they are
2 used, they spike the electrical demand and
3 trigger so called demand charges from the
4 electric utility, and some cases up to 90 percent
5 of the cost of operating these fast chargers
6 could be attributable to the demand charges. So
7 there is a number of different ways that were
8 suggested that we could address these demand
9 charges, including, I would add, just use one
10 example, battery storage.

11 That is to have a stationary battery
12 adjacent to the charger so that when an electric
13 vehicle plugs in, it's drawing some of the juice
14 off of the battery, not necessarily off of the
15 grid. That's just one example of how to address
16 demand charges. Other comments. Utility,
17 they're supposedly uniquely qualified to develop
18 infrastructure.

19 Also, equally qualified to inform
20 residents about the electric vehicles,
21 particularly things like time of use and battery
22 charging. Strong support for experimentation and
23 pilots to look at all these variables that were
24 presented and finding the best ones. And we
25 heard, you know, people have discussed today,

1 this notion of the heavy electric vehicles are
2 coming.

3 Well, some of the stakeholders told
4 us that as well. On a side note, the BPU also
5 operates a grant program for natural gas
6 vehicles. It was only \$200,000 the program is
7 now fully subscribed, so it's just another way to
8 offset some of the concerns about diesel
9 emissions that we've heard today. Other
10 comments, the notion of using electric vehicles
11 and demand response.

12 That is, essentially, our electric
13 grid generation was built around air conditioning
14 and some utilities like Public Service have the
15 ability to throttle back people's air
16 conditioners on a hot summer day to lower the
17 electrical demand. Similarly, you could do that
18 with electric vehicles, and in such a way, use
19 them as a demand response resource, but that's
20 not the full story.

21 There's another emerging issue of so
22 called vehicle to grid whereby there's a two way
23 communication between the vehicle battery and the
24 grid, so it's not just lowering the rate of
25 charge, but it's also feeding back power from the

1 vehicle battery into the grade. So some of the
2 leading experts in the country weighed in on this
3 and said, yes, you can do this now. And most of
4 our stakeholders said, we recognize the value of
5 it, but we think it remains emerging.

6 It's something that can be a great
7 benefit and we're looking at this very closely.
8 Here is the brave new world, folks. The
9 consulting firm, McKinsey calls this ACES. The
10 vehicles are going to be autonomous, connected,
11 electrified and shared. So all these things that
12 used to be science fiction, are not science
13 fiction so much anymore, so this is -- are we as
14 a state prepared for this? No.

15 So I think it's going to require a
16 multi disciplinary approach to deal with that,
17 and the stakeholders told us with this rapidly
18 evolving market, you too, the BPU, is going to
19 need to change to keep up with that. So
20 hopefully we're receiving that message and the
21 stakeholders thought that the process that we're
22 going through is worthwhile. We're not done yet,
23 and they asked for a continued engagement with us
24 on EVs. So that's it. If there's time for
25 questions.

1 MR. VALERI: You have a lot of
2 issues you're dealing with particularly between,
3 essentially, changing lifestyle, particularly
4 looking at charging during certain times, et
5 cetera. The board is still dealing with and your
6 stakeholder process still dealing with, but one
7 thing I noticed and I'm curious how you're
8 dealing with it, is once you figure this out
9 technically, there really will need to be an
10 education.

11 People are going to be asked or told
12 don't plug in at certain time, do things in a
13 certain way. What's the stakeholder process, or
14 is there going to be an engagement during the
15 stakeholder process on the board on rolling that
16 out so it doesn't fail?

17 So if you want people to charge
18 during a certain period of time or you want
19 people to act in a certain period of way, in
20 order to promote, not only the use, but the
21 system not collapsing. Has the board started
22 thinking about the stakeholder process?

23 MR. HORNSBY: From education?

24 MR. VALERI: Yes.

25 MR. HORNSBY: The short answer is

1 all of the above. The stakeholder strongly told
2 us the utilities, as they roll, if and ever they
3 roll out these programs, should have an
4 educational component of it as well. That's
5 common among utilities that have built this out.
6 There's a certain percentage allowable for
7 electric vehicles, but it can't be solely the
8 utilities.

9 DEP has established a website and
10 done a number of other outreach activities. We
11 as well. You've probably seen emails from me
12 about these electric vehicle meet ups, so all of
13 that is to raise awareness, so it's all of us
14 have to be a part of that.

15 MR. VALERI: I think that's going to
16 be a very important part of it. That was the
17 first reaction. If I have a car in park, I'm
18 going to want to plug it in right when I go in my
19 house, and I know that's a simple thing, but like
20 you said, that could be a real problem during
21 peak periods. I think it's something that the
22 board and the stakeholder process really needs to
23 think a bout it. Otherwise, you could have a
24 real problem on your hand.

25 MR. HORNSBY: Yes, you should plug

1 it in as soon as you get home, but there's a
2 timer on the vehicle or the charger that would --

3 MR. VALERI: Assuming they have a
4 program, yeah.

5 MR. HORNSBY: Some stakeholders told
6 us pricing there needs to be transparent pricing,
7 so that would reinforce that message.

8 DR. BIELORY: I play a devil's
9 advocate, but if everything is electrified and
10 you have a storm surge, there are communities
11 that go out, what's the back up? And even for
12 the sites that, if driving down the New Jersey
13 Turnpike, and you talk about concerns of how the
14 distance and there's a lack of electrical outlets
15 due to the BPU not having the ability to deliver
16 energy, a solar back up would be awful.

17 I'm just thinking that has to be
18 part of the plan because you can -- if everybody
19 is driving electrical vehicles, which we want, no
20 electrical grid, you don't have to worry about
21 going to work. You're not getting there either,
22 so I'm also worried about the critical reliance
23 on the energy source.

24 MR. HORNSBY: Well, this whole
25 notion of energy resilience is of central

1 importance to the board. That's for certain.
2 Several responses. One, the batteries themselves
3 can serve as an electrical resource to export
4 energy. Perhaps if the grid is down to your
5 house. It's called V2H Vehicle Two to house.
6 The second thing is, our office is involved in
7 establishing microgrids.

8 We have 13 microgrid projects going
9 on in the state now and there's a requirement
10 that all of them be electric vehicle friendly, so
11 there will be additional places to charge your
12 vehicle. And if worse comes to worse, for
13 example a Tesla vehicle has so called camper
14 mode. You could live in that Tesla and have it
15 heated and cooled and sleep in it if Armageddon
16 arrives.

17 DR. BIELORY: I'm not worried about
18 Armageddon. I'm talking about a storm that hits
19 Springfield, New Jersey and people didn't have
20 power for nine days. I had a generator. The
21 question is whether or not generator stations via
22 public and local areas are able to fill up from
23 natural gas. This needs to be part of the plan.
24 Otherwise, I have a great fear your science
25 fiction is not science fiction. We're all going

1 to be eating potatoes.

2 MR. HORNSBY: Just like people talk
3 about fuel diversity across generation sources.
4 The same holds true for transportation sources.
5 There is a place for gasoline and natural gas
6 vehicles and electric vehicles, so having a
7 transportation diversity is important as well.
8 And when the power goes out, gasoline stations in
9 many cases are unable to pump gas as well

10 DR. BIELORY: I'm talking about
11 natural gas. I'm talking about a generator.

12 MR. HORNSBY: Natural gas is much
13 more resilient to interruption because
14 infrastructure is varied.

15 MR. EGENTON: Mike, one last
16 question from me. I know you engaged the DEP on
17 a regular basis on a lot of topics including
18 this. How is the interconnectivity of engagement
19 with some of our other agencies we have them here
20 later on today. Just curious, whether it's DOT
21 or Port Authority, whoever, do you have that
22 connectivity with them sharing the stakeholder
23 process?

24 MR. HORNSBY: Last year, the board
25 established an alternative fuel vehicle work

1 group, so we're engaging all of these groups. We
2 certainly recognize the DEP and Treasury is
3 centrally important and the DOT and DCA center
4 have strong roles as well.

5 MR. EGENTON: Thank you.

6 (APPLAUSE)

7 MR. EGENTON: Next up we have
8 Jeffrey Perlman. He's the manager with North
9 Jersey Transportation Planning Authority, and
10 Jeff is going to focus on Getting Ready,
11 Alternative Fuel Vehicle Readiness Planning at
12 the Local Level. Welcome, Jeff.

13 MR. PERLMAN: Thank you. I know I
14 stand between you and the lunch break. So for
15 those of you who don't know the NJTPA, we are the
16 North Jersey Transportation Planning Authority
17 with a metropolitan federally mandated
18 metropolitan planning organization for Northern
19 New Jersey, so what is Northern New Jersey in a
20 transportation or a context is the 13 northern
21 counties as well as the cities of Jersey and the
22 City of Newark.

23 I joke if you're a Giants fan or a
24 Yankees fan, you probably live in our region.
25 And if you're an Eagles fan, you're not. So what

1 do we do? We program federal transportation
2 dollars, so if you look at our board, you know
3 the board is basically, we link the federal
4 dollars to the local needs is sort of the way to
5 think about it. Our board, 20 member board, the
6 representation, elected officials, freeholders
7 from the 13 counties.

8 We also have representation from the
9 City of Jersey City and the City of Newark as
10 well as representation from our operating
11 agencies as we call them, so New Jersey DOT, New
12 Jersey Transit and the Port Authority.

13 We have the governor's rep and
14 citizen's rep, which we haven't had in a while,
15 but we have a full board compliment. All of the
16 decision making goes through the Board of
17 Trustees, so the local needs, the federal dollars
18 and we do a ton of planning studies. You know,
19 looking at whether it's congestion, transit
20 improvements, looking at the infrastructure and a
21 state of good repair.

22 These are some of the major goals of
23 the agency. We have a number of committees that
24 are staffed from those, from the counties and the
25 transportation agencies. We prioritize federal

1 projects for federal funding so we have those
2 committees and we care very much about freight as
3 we have a freight initiatives, so with that in
4 mind, in that context, how did the MPO begin to
5 get into the alternate fuel vehicle space and
6 that's due to our long range planning.

7 And I should have a slide about
8 this. We did adopt our plan 2045. That is our
9 long range transportation plan just this past
10 November. One of those priorities is in the
11 environment and air quality, and so over the
12 years in which I have been working in this space,
13 we started with -- we obviously do the air
14 conformity for our region, but we also started
15 looking at greenhouse gas emissions in 2010.

16 When I started at the agency at
17 2009, we started that at 2010 and we did a
18 greenhouse gas engagement plan where we
19 identified, has already been established,
20 electrification of the transportation sector
21 would be the largest single strategy to produce
22 greenhouse gas emissions in the long run.

23 You've heard that already this
24 morning, so fast forward to today, we started a
25 study, basically engaged in a study looking at

1 ultimate fuel vehicles, and the process started
2 in 2013, 2014 and it's taken a long time to get
3 this thing done, but it's basically our study
4 looked at two things. One is readiness plans at
5 the local level. Our board is made up of
6 localities and counties, so there's very much a
7 need of looking at the technology, the evolving
8 technology, how does that play out in the local
9 level.

10 So we recruited three pilot
11 municipalities in our region. The town of
12 Secaucus in Hudson County, the Township of
13 Woodbridge in Middlesex County and Montclair
14 Township in Essex County. Don't ask me how they
15 were picked. It is a long story, but those are
16 the three pilot municipalities, but we engaged
17 with their stakeholders in local planning around
18 most electric vehicles but we did look at natural
19 gas vehicles as well.

20 We did that planning work and then
21 rolled that into a guidebook that's available for
22 all municipalities, not just in our region, but
23 really the entire state and outside the city.
24 And I'll go through them in more detail. One of
25 the first things we did was with those pilot

1 municipalities is looked at demand. Where are
2 electric vehicles likely to be purchased, so with
3 that, we had a really a dynamic stakeholder
4 committee, including DEP and Mike Hornsby at BPU,
5 NJ CAR, the utility companies.

6 It was a big group, a big unwieldy
7 group, but we got it done. What we looked at,
8 you know, where electric vehicles were purchased
9 and we worked with DEP to get that information,
10 so thank you, Peg and then we looked at the
11 census tract level, income, housing tenure, you
12 know, those sorts of multi family, single family
13 homes and we then mapped for those
14 municipalities, those areas where, you know,
15 where we think demand is highest and where do we
16 think it's the lowest.

17 So you see Montclair here. This is
18 one example, so we looked at that from a
19 residential perspective. We looked at that from
20 an employment perspective and we looked at it
21 from an opportunity perspective, so home base
22 charging, workplace charging and sort of
23 everything else. Going to a shopping center,
24 that sort of, that kind of charging, so each map
25 represents a different user type, different

1 charging type.

2 So for Montclair, if you know
3 anything about Montclair, the northern half of
4 Montclair is very affluent, multi single family
5 owners and homeownership rights, so it comes up
6 red, really red is the highest demand. In terms
7 of work place targeting is where employment,
8 major employers might be. And with that, we used
9 our transportation demand model. We know with
10 our model where trips are starting and where
11 they're ending.

12 And we know largely what kind of
13 those trips are composed of, and so we can tell
14 you at a census tract level, where we think
15 workplace charging might be in highest demand.
16 And then for the rest of the stuff, which is
17 opportunity based charging, we look at trips made
18 to shopping centers or downtown business
19 districts and Montclair, you can also what pops
20 in part is the downtown business district.

21 So we work with municipalities, say
22 okay, with your heat mapping, this is where we
23 think demand for ownership of electric vehicles
24 will be and demand for where that charging is
25 likely to happen and then what we did is sort of,

1 we looked at a whole host of different types of
2 charging, infrastructure and needs for that. So
3 we did focus, I think, largely on the private
4 home charging work place. We did a little bit of
5 fleets though we realize and it's already
6 discussed this morning, that's an outstanding
7 area of additional needs, planning needs and
8 discussion.

9 And then of course, we're looking at
10 community charging and outdoor charging with the
11 federal highway clean fuel vehicle corridors.
12 There were none when we started this study. Now
13 there are five. Just real quick, some of the
14 findings, I should say. This is already sort of
15 known discussion this morning is that when you're
16 looking at single family homes, the residential
17 side, if they likely have a driveway, looks like
18 they have a garage, this is the kind of stuff,
19 from a municipal perspective, there isn't a whole
20 lot of need here to make investments.

21 Education and charging and that, as
22 we heard from Mike, that's needed. When you look
23 at multi family dwellings and renters, again, as
24 discussed, this is a challenge. For multi family
25 dwellings, the issue of whether or not there is a

1 garage that individual owns or controls, right,
2 if it's part of a homeowners association, you're
3 going to have issues with the homeowners
4 association permitting a charger to be installed.

5 And then of course renters who don't
6 own the property at all and the challenges of
7 actually do they have even off street park. This
8 is across the street from my house, this is a
9 four plex, no off street parking at all, right.
10 So those people they have hybrids, but they don't
11 have electric vehicles and will not be able to
12 charge.

13 And then I mentioned the homeowners
14 association. This is a condo complex in my town
15 as well. The issue of here the parking lots
16 owned in common. It is not owned by the owners,
17 so these are outstanding challenges that our
18 study identified. From each municipality, we had
19 representatives from homeowners association and
20 we were able to sort of able to educate them.

21 We didn't get them all the way to
22 saying, yes, they will receive chargers, if their
23 residents want them, but they now are aware of
24 the challenges and are working with their
25 residents. Just to give you a sense of the next

1 step of the process with these local plans is you
2 start with a heat map and then zoning districts.

3 They're zoning and redevelopment
4 plans to say, if you've got a redevelopment plan
5 where it overlaps with high demand for workplace
6 charging, you might want to include charging
7 chargers as part of the redevelopment plan. So
8 that's the next level of sort of the analysis.
9 I'm a land use planner so I really wanted to add
10 to the analysis, zoning a zoning perspective, so
11 we were able to sort of then, from the
12 municipality, not identify specific parcels, but
13 identify sub areas within a municipality where
14 they might want to make those investments and
15 reach out to the stakeholders in that district.

16 So in Montclair, Mountainside
17 Hospital, the downtown business district,
18 Montclair State University, just some examples.
19 We developed a whole host of planning strategies
20 that come at the back end of the study, and I
21 focused on some of the areas where a municipality
22 really can make changes, right. Building codes,
23 those are state regulations so we did not touch
24 that at all.

25 So things on land use and planning,

1 yes. On incentives, perhaps. Consumer
2 awareness, absolutely. Stakeholder training and
3 education, yes. Those are the things we focused
4 on, and our recommendations, zoning ordinances
5 and redevelopment plans, to include, if not
6 chargers themselves, then to make those parking
7 garages or parking lots charging ready, right.

8 Conducting education and outreach to
9 property owners, to the public, to businesses
10 about benefits of electric vehicles and
11 alternative fuel vehicles and this opportunity
12 for residents for multi family dwellings. We did
13 talk to, particularly Woodbridge, we did talk to
14 property managers of multi family apartments and
15 talked through with them some of the challenges
16 and barriers and some of the resources that are
17 available to them to install that stuff.

18 And so I think that really helped
19 break the barriers down. Again, we need the
20 municipality needs to follow up with targeted
21 outreach. We can only do so much. There is a
22 lot more that has to be done. In terms of grants
23 and funding opportunities, we did list some of
24 those in the readiness plans, and this municipal
25 stuff that you heard mentioned and questions have

1 been asked before, we did have, you know,
2 municipalities and we did try to reach out to
3 large industrial and commercial companies who
4 have fleets.

5 We did start those conversations,
6 but they need to be ongoing. They need to
7 continue. Really, it's an education and a
8 knowledge issue that we identify. Another thing
9 I noticed about some of the recommendation factor
10 is one thing that we heard was really
11 interesting. For one municipality, and I won't
12 say which one because I'm not sure they want me
13 to say this, but if you're a commercial property
14 owner, and you want to put in electric vehicles,
15 do you need to get site plan approval.

16 In many cases you might have to.
17 You want to trench out and put a conduit in and
18 then put the chargers in, you're going to have to
19 submit a site plan approval to the planning board
20 which means you get an attorney, a planner. You
21 get all your professionals and you take six
22 months, maybe just to get an approval.

23 So those costs, that matters and
24 that's a barrier and one municipality basically
25 says, you don't have to do that anymore. You

1 come in, you get your electrical permits. That's
2 it, and that has been really helpful to this
3 municipality, where they're DC fast chargers
4 going in to a Wawa that may narrow down the
5 municipality. They didn't have to get the site
6 plan approval. That accelerated the process. We
7 think that is a really innovative approach.

8 The readiness plans on our website
9 and there is the URL. I have cards and I can
10 talk to you during lunch about this, so we have
11 the readiness plans. We then rolled in the
12 readiness plans to a guidebook, and this
13 guidebook is fuel neutral, so it's just not
14 electric vehicles, as you can see in the cover
15 slide, we discussed all the alternate fuel
16 vehicles and their potential applications, so
17 hydrogen, natural gas, bio diesel.

18 They're all there, so when a
19 municipality wants to do a readiness plan, they
20 can go beyond electric vehicle and natural gas.
21 They might look at other technologies as well and
22 we have some guidance as to how they can think
23 about that in their planning processes and that's
24 it.

25 MR. EGENTON: Thank you. I'm going

1 to ask you a quick question. One statement. One
2 question. And I'm familiar with the bureaucratic
3 maze of working with 565 municipalities. It
4 might be a great idea, since you're the primary
5 MPO in the state to engage them in the next
6 cycle, the next world that we have to work in and
7 maybe with DCA, just a suggestion because
8 certainly with 565 jurisdictions, that could be
9 complicated and certainly recognize your efforts.

10 With the other MPOs, are you
11 communicating with them since you represent a
12 good chunk of New Jersey, but just want to see if
13 they're on the same page as to the activity that
14 you folks

15 MR. PERLMAN: Yes. I was at
16 Delaware Valley Regional Planning Commission on
17 Tuesday. Ron Graff is sort of the climate change
18 energy counter part to me and we just talked on
19 Tuesday. We shared information. He knows what
20 we're doing and we know what he's doing and we're
21 collaborating.

22 MR. EGENTON: Very good. Other
23 questions? Council members?

24 DR. OPIEKUN: I have a question
25 regarding -- you mentioned that in -- in your

1 region, there's a lot of people that have on
2 street parking rather, so there are limited
3 opportunities when it comes to charging, and it
4 seems that we're often talking about a very
5 complicated infrastructure development.

6 Well, a recent program done in
7 London, England, what they did was, the
8 municipalities working with utilities got these
9 chargers to be mounted on lamp posts throughout
10 the city.

11 You know, that's something that I
12 think could be done here as a pilot program.
13 Special cables were provided to each owner. They
14 had to register their vehicle so they were able
15 to plug in to these ports. The port, it was a
16 smart table, so the billing and all that, was
17 done through the cable users, so you got billed
18 any time you plugged in.

19 So the infrastructure for bringing
20 power to a city is already in place. It's a
21 matter of how to connect into that
22 infrastructure. Also, somebody mentioned to me
23 at one point, there's still areas up in northern
24 New Jersey, some of the major roads that still
25 have call boxes that are no longer used because

1 people have cell phones, but the infrastructure
2 is in place where there are the trenches have
3 already been dug, wires have already been run,
4 can they be modified to do quick charging that
5 would reduce range anxiety, especially in people
6 that don't have the opportunity to do charging at
7 home and can only can do it in public areas or in
8 work place.

9 Could your organization do any kind
10 of heat mapping related to the availability of
11 that type of charging, those type of charging
12 stations, call boxes, that type of thing. And
13 has any study been done, have you looked into
14 anything that they do in London right now with
15 the electric, the utility pole charging?

16 MR. PERLMAN: So as part of the
17 study, there was a literature review. This stuff
18 moves so fast. We started literature review 18
19 months ago. That was published. I don't know if
20 that example -- I don't think it made it into the
21 literature. I will follow up with that example
22 with you.

23 DR. OPIEKUN: I could find you the
24 article.

25 MR. PERLMAN: Part of the technical

1 committee that we did for that included utility
2 companies. We don't have a mapping of those call
3 boxes, but certainly, what we can do is, and
4 we've been working with the utilities for sure is
5 we can send them those heat maps. We have GIS.
6 We have the analysis, and particularly if there's
7 going to be a rate filing to do that additional
8 infrastructure investment, there might be a way
9 to marry those things together.

10 DR. OPIEKUN: One of our previous
11 speakers from BPU, one of the comments that
12 people had indicated that there's a need for
13 experimentation and pilot programs and I think
14 that something like that might fit in.

15 MR. PERLMAN: That is something we
16 can circle back on.

17 MR. EGENTON: That would be great.
18 Keep the lines of communication open. Thank you,
19 Jeff. Appreciate it.

20 (APPLAUSE)

21 MR. EGENTON: Okay, folks, we're at
22 our midway point. Thanks for hanging in there.
23 Lunch will be served to the Clean Air Council
24 members and our invited speakers here at this
25 level. I'm going to make an executive decision

1 to stay on target. I would ask everybody,
2 council members, to be back by 20 after 12, give
3 a little bit of a buffer so we can kick the
4 second half off. Thank you all very much.

5 (Whereupon a break was taken.)

6 MR. EGENTON: Welcome back,
7 everyone. Appreciate everyone being very timely.
8 We have our webinar guests online. So this is
9 the second half of the Clean Air Council public
10 hearing. Wanted to introduce Dale Hall,
11 Associate Researcher and Peter Slowik, researcher
12 with the International Council on Clean
13 Transportation, and their focus will be Electric
14 Vehicle Charging Infrastructure and Incentive
15 Design Best Practices. Dale, Peter, thank you
16 for joining us via the webinar and the floor is
17 yours. Thank you.

18 MR. HALL: All right. Thank you
19 very much for that introduction, and thank you
20 for having us. We're really happy to be here
21 today. My name is Dale Hall, and I'm an
22 associate researcher at the International Council
23 on Clean Transportation or the ICCT, and we are a
24 non profit research group that does work on clean
25 vehicle and clean fuel standards and major

1 markets all around the world with the goal of
2 promoting clean air and reduce gas emissions from
3 all parts of the transportation center.

4 We're really happy to be here today
5 and discuss key questions about electric vehicle
6 infrastructure and portability before the
7 council, and we're really excited to see all of
8 the stakeholders gathered here to really
9 accelerate this important conversation in New
10 Jersey.

11 So as part of the ICCT's work in
12 electric vehicles, we conduct regular updates and
13 analysis on the United States electric vehicle
14 market and this has been a really exciting time
15 to do this kind of work because we have seen last
16 year, about almost 30 percent year over year
17 growth in electric vehicle sales in the U.S. as
18 well, for the first time, electric vehicles
19 accounting for more than one percent of all
20 vehicles sold, passenger vehicles sold in the
21 United States.

22 As you can see, on this chart, there
23 are substantial sales all over the country, but
24 we do continue to see the sales concentrated
25 primarily on the west coast in California, and as

1 well as in the northeast to a lesser degree, and
2 we found that this is not a coincidence. And in
3 all of these leading markets, there are a number
4 of policies and actions in place that have
5 spurred the market so far and that we think will
6 continue to be important in accelerating the
7 market into the mainstream in the coming here
8 years.

9 Today, my colleague, Pete, and I,
10 are going to hone in on just a couple of these
11 important actions. First, I'm going to discuss
12 public charging infrastructure, and then my
13 colleague will talk about consumer incentives for
14 electric vehicles. So electric vehicle sales
15 have grown in the U.S. and around the world, from
16 basically nothing, around 2011, to over a million
17 a year last year for the first time.

18 And we now have around three million
19 electric cars on the roads around the world
20 concentrated mostly in China and Europe and the
21 United States. As you can see on the slide here,
22 the number of publically available charge points
23 have grown in tandem with the electric vehicle
24 market and there are now half a million public
25 charge points available around the world.

1 Again, concentrated in China,
2 followed by Europe and the United States. So you
3 can see that the growth has been consistent and
4 steady in all of these markets illustrating that
5 these two matrix, the number of vehicles and the
6 number of charge points are closely linked. In
7 our research on public charging in particular, we
8 have repeatedly found that indeed there is a
9 statistical linkage between the availability of
10 public charging infrastructure electric vehicle
11 update, and this has been confirmed within the
12 United States market in particular as well as in
13 the global context both for regular and fast
14 charging.

15 However, we have also found that
16 there is no single right answer to the question
17 of how many charging stations you need to build
18 to support a given electric vehicle market. But
19 then United States markets, we've seen somewhere
20 around one public charge points for around 20 to
21 30 electric vehicles. However, that number can
22 vary based on a lot of factors such as population
23 density, the type of housing stock and the type
24 of vehicles on the road, and we expect that ratio
25 to continue to evolve in the future as electric

1 vehicle technology improves and charges get
2 faster.

3 Similarly, there's no single right
4 answer for the balance between regular or level
5 two charging and EV fast charging. We've seen in
6 many areas that fast charging represents about 15
7 to 20 percent of the charging points in a given
8 metropolitan area, but of course, that also
9 depends on a number of factors and technology is
10 changing quickly.

11 So with all this uncertainty, why do
12 we know that public charging is important in
13 driving the market? Well, we've seen that most
14 electric vehicle charging takes place at home,
15 and we expect that to continue to be the case in
16 the future. However, for some drivers, they
17 would not be able to buy an electric car or
18 conduct their daily routines without the public
19 charging infrastructure.

20 And even for drivers who don't use
21 charging infrastructure regularly in the public
22 realm, just seeing these chargers out there and
23 knowing that there are chargers, a reliable
24 charging network distributed around their city
25 and their state, provides them with range

1 confidence and enables them to know that they can
2 conduct the same business with an electric car
3 that they would with a gasoline car.

4 And additionally, public charging
5 infrastructure is just a great visual reminder
6 that electric vehicles are out there and that
7 they are a real technology, and so we think it's
8 an important demonstration on the importance of
9 electric vehicles. Now, it's easy to say that
10 charging infrastructure is important and that
11 more challenging infrastructure will need to be
12 built as the market grows, but of course there
13 are some challenges in the implementation of this
14 goal.

15 Fortunately, a number of leading
16 government at the city level, the state level as
17 well as private stakeholders have all been
18 encountered the same challenges for the past
19 couple of years and have come up with a number of
20 innovative solutions and lessons that everyone
21 else can learn from. One such lesson that we
22 have repeatedly seen in our work is that it's
23 really important to engage with utilities.

24 Utilities are obviously the experts
25 in the electric grid and in delivering

1 electricity to all kinds of applications, and in
2 general, we've seen that utilities are pretty
3 positive about the growth of electric mobility,
4 if the correct planning is in place. And a
5 number of states have enabled their utilities to
6 participate in the growth of electric vehicle
7 market by directly constructing charging
8 stations.

9 This happened in places such as
10 Massachusetts, California and Washington, and
11 this has been really helpful in increasing the
12 number of stations available. In some cases, the
13 state governments have directed utilities to
14 target their investments to the areas where
15 charging stations are the most needed or the
16 private market might otherwise be a bit slow to
17 get to, such as disadvantaged communities or
18 multi unit dwellings.

19 And in other states, we've seen
20 programs such as utilities directly providing
21 incentives to residents or businesses who want to
22 install their own charging infrastructure which
23 really helps to build momentum and get more
24 people involved in supporting electric vehicles.

25 One area that has received a lot of

1 attention recently as sort of a sticking point
2 for the electric vehicle market is multi unit
3 dwellings which is a category that includes
4 apartment buildings as well as compounds and any
5 other source of residence where residents may not
6 have access to a private garage that they can
7 install their own private charging station in.

8 So clearly, this is an area where
9 it's a bit more challenging to own an electric
10 car if you are unable to charge regularly at
11 night. And the easiest solution for this sector,
12 in the long term, is to require that EV building
13 codes be implemented which would make, which
14 would put the infrastructure in these buildings
15 ahead of time to support chargers later.

16 Therefore, saving a lot of money and
17 making it much easier for residents of these
18 buildings to own electric cars. We've seen it at
19 the city level, as well as with the state level,
20 all over the country and it's clear that this is
21 a pretty easy policy to put in place that has the
22 potential to save a lot of money in the long term
23 and expand the market into new air gas.

24 This is also an area in the short
25 term where utilities play a role and we see

1 several utilities in California for example
2 already have programs to install charging
3 stations in multi unit dwellings. Finally, to
4 provide additional flexibility, some cities in
5 the U.S. and around the world are installing curb
6 side charging stations that can work for many
7 residents in the neighborhood as well as
8 potentially people going to work or running
9 errands. And although these may be a bit more
10 costly up front, they provide a lot of
11 flexibility and see utilization.

12 So in the U.S., cities like Seattle
13 and Philadelphia have been looking into the
14 permitting for these types of stations and even
15 launching pilot projects to target them to where
16 they're most needed. Another issue that has
17 frequently been raised, as far as electric
18 vehicle infrastructure, is the tier grid
19 stability. What's going to happen when all of
20 these cars are charging at the same time and use
21 a lot of electricity?

22 What we found is that in general,
23 most charging is not going to be an issue for the
24 electric grid for the foreseeable future, but
25 nonetheless, there are some tools to ensure that

1 electric vehicles charge when there's more
2 capacity on the electric grid and therefore don't
3 require additional utility investment
4 infrastructure.

5 The easiest of these is time of use
6 rates, which I should note, PSE and G in New
7 Jersey has already implemented along with
8 hundreds of other utilities around the country.
9 These types of electricity rates where people are
10 charged less for electricity during the off peak
11 hours, typically the night, really represent a
12 win-win for electric car drivers who are able to
13 spend less on parking their cars as well as
14 utilities who avoid having to make additional
15 investments in their distribution systems, but
16 also still see the benefits of electric cars and
17 increasing their utilization.

18 The one area that could pose a
19 problem for the electric grid in the near term is
20 DC fast charging which, as I said, makes up
21 somewhere around 10 to 20 percent of public
22 charging stations in most areas. These stations
23 do see a very high power demand, and it's
24 typically only concentrated in certain times of
25 the day, so this is an area where it's especially

1 important to work with the utilities, to find the
2 places where there's the most access grid
3 capacity.

4 And a great example of that is the
5 PG and E utility in northern California, which
6 has developed a mapping tool to allows businesses
7 to find areas, specific locations within a
8 broader area where there's more grid capacity so
9 that the fast charging stations wouldn't
10 represent any kind of issue from the utility
11 perspective.

12 As the number of charging stations
13 increases and as charging fees get faster and
14 faster in the future, it's really important just
15 to engage with utilities and have a good dialogue
16 at the city government and utility level. So
17 just to conclude my section of this presentation,
18 public charging infrastructure is really
19 important for overcoming the convenience issue in
20 electric cars and it's a part of a mature market.

21 Anywhere we see a high electric
22 vehicle sales, we see greater availability of
23 public charging infrastructure. However, it
24 alone is not enough to increase the market, and
25 we've seen examples where you have a lot of

1 public charging infrastructure builds without
2 company policies to support other parts of the
3 market.

4 And as a result, they have not seen,
5 especially high electric vehicle sales, so it's
6 important to have a full suite of policies. And
7 to talk more about that, I'm going to hand it
8 over to my colleague, Pete Slowik. Please, go
9 ahead, Pete.

10 MR. SLOWIK: Thank you, Dale, for
11 the very, very nice introduction and the
12 fantastic overview of the EV charging
13 infrastructure challenges and some solutions. I
14 would like to take a moment just to say thank you
15 again very much for the New Jersey Clean Air
16 Council for the opportunity to participate today.
17 As Dale mentioned, I'm Peter Slowik.

18 I'm a colleague of Dale's here with
19 the International Council on Clean Transportation
20 also on the Electric Vehicle. So let's go ahead
21 and shift gears away from questions about charge
22 infrastructure to some of the key considerations
23 for electric vehicle affordability and consumer
24 incentives. So it is well known overall that
25 there's strong linkages between incentives and

1 electric vehicle adoption.

2 Governments around the world are
3 offering a broad mix of financial and
4 nonfinancial incentives that are encouraging
5 consumers to go electric. For the next few
6 minutes I'll be speaking only about fiscal
7 incentives for electric vehicles. There are a
8 variety of fiscal incentives in the United States
9 today including the federal income tax credit
10 worth \$7,500.

11 And in states like Oregon,
12 California, Massachusetts, Connecticut and New
13 York, offer electric vehicle purchase rebates.
14 And there are also sales tax exemptions which are
15 found in areas like New Jersey and Washington
16 State, and these consumer incentives are critical
17 in helping consumers to overcome the key to
18 upfront cost barriers by lowering the upfront
19 cost differentials between electric vehicle
20 models and their gasoline counter parts.

21 There is a growing body of research
22 that is indicating the importance of incentive
23 design and its effectiveness in encouraging
24 electric vehicle sales. Some of our recent ICCT
25 research has identified several key incentive

1 design elements which are shown here on the
2 bullets on the slide. For example, there is the
3 magnitude of incentives which typically range
4 from a few hundred up to \$10,000 and then there's
5 also the timing of the incentive.

6 Meaning, whether an incentive is
7 applied and available to a consumer at the
8 vehicle point of sale, or does it apply at some
9 future time. Then there can also be eligibility
10 rules based on a vehicle's technology type. For
11 example, full battery electric vehicles or plug
12 in hybrid electric vehicles or an electric
13 vehicle's range or the vehicle's battery
14 capacity.

15 And then also many ownership types
16 could also be included under an incentive program
17 which could, for example, include privately owned
18 vehicles, fleet owned vehicles or both. And then
19 the complexity which describes whether the value
20 is crystal clear to consumers and dealers.
21 Hence, the value of incentive is easy to
22 understand. And then we have durability, which
23 means the relative reliability of the incentive
24 and its availability for multiple years.

25 And this table here summarizes some

1 of the key findings from our previous research.
2 And the table shows several electric vehicle
3 markets that are exemplifying many of the best
4 practice incentive design principals.

5 So on the left hand side we show 10
6 vehicle markets including California, Japan,
7 Norway, the Netherlands, United Kingdom, France,
8 Beijing, Sweden, Washington and Denmark and each
9 of these 10 markets are global electric vehicle
10 leaders in terms of vehicle registrations, total
11 electric vehicle registrations as well as the
12 percentage of new vehicle sales that are
13 electric.

14 And then looking to the right hand
15 side of this figure, as shown by the darkened
16 lettered green boxes, these governments have all
17 tended to adopt many of the best practice design
18 incentive principals that we're finding in our
19 research. So specifically, incentives in many of
20 these markets tend to be substantial for both
21 battery electric and plug in electric hybrid
22 vehicles.

23 The incentives tend to be available
24 at the point of sale or quite close to the point
25 of sale. The incentives also tend to be offered

1 to both purchase as well as vehicles that are
2 leased. The incentives in these markets also
3 tend to be durably locked into place for several
4 years and are available for many years in the
5 future.

6 And finally, incentives in these
7 markets tend to be relatively simple for
8 consumers and dealers alike to understand their
9 exact value. And I'd like to take a moment to
10 dig a little bit deeper into one of these design
11 principals that I've just explained. And our
12 research is showing that the timing of incentives
13 in particular is a key factor in its
14 effectiveness in driving electric vehicle sales.

15 Receiving financial incentives
16 immediately and at the point of sale is found to
17 be much more appealing to consumers compared to
18 receiving incentives at some future time. And
19 this is typically for years. First by lowering
20 the purchase price at the point of sale this
21 fundamentally reduces assets that are required by
22 a consumer in order to purchase electric vehicle.

23 Second, up front incentives can help
24 eliminate any uncertainty about the value of the
25 incentives. And third, consumers have also been

1 found to highly discount any future savings which
2 effectively reduces the value of incentives that
3 are received at some future time. And so
4 governors around the world are increasingly
5 recognizing the importance of offering incentives
6 up front and at the point of sale.

7 I'll give you several anecdotes to
8 this. For example, New York, electric cars, the
9 purchase price at the point of sale at the
10 dealership and this program makes the process
11 easy and clear for consumers and there is no
12 paperwork. Rhode Island, in their zero emission
13 action plan, acknowledges that financial programs
14 are more effective at driving electric vehicle
15 sales whether they're offered up front and at the
16 point of purchase.

17 And also in California, the state is
18 exploring a point of sale program as a method to
19 increase participation and therefore electric
20 vehicle adoption. And the California Air
21 Resources Board Agency has found that point of
22 sale rebates, would especially benefit lower
23 income consumers in the state of California by
24 helping to reduce the upfront requirements that
25 are needed to invest in an electric vehicle.

1 One more anecdote for you. In 2017,
2 the state of Colorado modified its state electric
3 vehicle tax credit to apply to the point of
4 purchase. Thereby replacing the old former
5 system that used to require buyers to wait until
6 they filed their taxes to receive the benefits.
7 Of course there are other factors in the market.
8 Electric vehicles sales in Colorado increased by
9 approximately 50 percent year over year from 2016
10 to 2017 which is almost double the U.S. average
11 growth.

12 And so I'll take a moment to
13 summarize some of our key findings on electric
14 vehicle incentives and their design. We find
15 that electric vehicle incentives are critical to
16 maintain electric vehicles cost competitive here
17 in the early market. We also find that markets
18 with well designed fiscal incentives typically
19 have greater electric vehicle adoption than
20 elsewhere in the world.

21 And our research points to several
22 key considerations for optimal incentive design.
23 First, it is ideal to give incentives upfront to
24 the point of sale and make the value crystal
25 clear to consumers and dealers alike. Second, it

1 would be ideal to ensure that incentives are
2 available to the main stream market. Including,
3 for example, both privately owned as well as
4 suite owned vehicles.

5 It might also mean possibly
6 excluding certain luxury electric vehicle models
7 as luxury models may be purchased or leased
8 regardless of the availability incentives, and
9 this could help make sure that incentives are
10 available to lower cost vehicles. Third, it
11 would be ideal to set eligibility based on the
12 ability of the electric vehicle to displace
13 additional fuel.

14 And for example, this could mean
15 providing slightly lesser incentives for plug in
16 hybrid electric vehicles or slightly lesser
17 incentives for lower managed electric vehicle
18 models. And then finally, we find it is ideal to
19 connect to durable incentives that are allowing
20 manufacturers, dealerships, outreach campaigns
21 and consumers to rely on them for at least
22 several years in the future throughout their
23 plan.

24 And so there are a handful of
25 examples locally where we've seen incentives

1 expire and electric vehicle sales have dropped
2 dramatically on the order of 80 to 90 percent
3 afterwards. We've seen this happen in Georgia,
4 for example, as well as similar markets, and
5 we've also seen similar markets affect Denmark
6 and the Netherlands and Europe.

7 Now, I'll take a moment to wrap up
8 our presentation here. Overall, our research at
9 the ICCT, is showing many actions by many players
10 are supporting the electric market growth in the
11 U.S. as well as globally. Many actions help to
12 overcome the prevailing barriers to growing the
13 electric vehicle market. And we're finding that
14 the top markets are demonstrating the key
15 ingredients to market growth.

16 Here are several examples. Carbon
17 dioxide regulations and zero emission vehicle
18 requirements are working to increase electric
19 vehicle models availability and diversity.
20 Therefore, helping to meet a broader consumer
21 preference of various vehicle makes and models.
22 We're finding that building the charging
23 infrastructure network is helping to overcome key
24 range barriers while also helping to raise public
25 awareness.

1 We're finding that consumer
2 incentives are supporting the adoption of
3 electric vehicles by helping to lower the grower
4 up front cost differential between electrics and
5 comparable gasoline models. And finally, we're
6 finding there are a wide variety of many local
7 additional actions and initiatives that are
8 helping to raise consumer awareness and promote
9 driving electric by offering an additional local
10 benefits and purchases to consumers.

11 And with that, I'd like to take one
12 more moment to say thank you very much to Heidi,
13 to Peg and to the entire New Jersey Clean Air
14 Council for the opportunity to participate in the
15 public hearing today. My colleague, Dale and I,
16 are glad to follow up and help answer any
17 questions or provide additional recourses. We've
18 listed our contact information as well as several
19 relevant electric vehicle studies that our
20 presentation has been made upon. So thank you
21 very much for your time and this opportunity.

22 MR. EGENTON: Thank you, Peter and
23 thank you, Dale. I'd like to open it up to any
24 of the Clean Air Council members that have any
25 questions.

1 DR. BIELORY: This is Dr. Bielory.
2 I am one of the Clean Air Council public
3 physician, the only physician. The question I
4 have, you look at your map, obviously, the west
5 coast is heavily on your first slide, but there's
6 something right across the border of Connecticut
7 and Massachusetts that is heavily blue and a spot
8 in, I guess it was in Vermont. Is that
9 specifically based upon regulations in those
10 areas?

11 If you go to your first slide in the
12 area of Vermont and Massachusetts, there is -- I
13 should says, it's not Vermont. It's New
14 Hampshire. It's blue, but it has a specific
15 region within, it looks like a county. Is that
16 based upon local legislation?

17 MR. SLOWIK: This is an excellent
18 question. We are seeing several pockets outside
19 of the West Coast, especially in the northeast
20 that have implemented many of the key ingredients
21 to growing an electric vehicle market. And many
22 of these areas we're seeing the availability of
23 seeing incentives, utility programs, awareness
24 campaigns to grow the awareness, consumers and
25 we're seeing quite a handful of local in many of

1 these areas to helping to raise awareness and
2 provide additional benefits and appeals to
3 consumers in these markets.

4 So we're really seeing that there's
5 quite a handful of actions in many of these
6 northeast markets that are helping to drive
7 growth and awareness in these markets. And I
8 think in some of our research, we catalogue a
9 total of about 40 different unique actions
10 between state policy, city as well as utility
11 action.

12 Many of these markets have on the
13 order of 20 to 25 actions which are all helping
14 to support the market. And each of those ways is
15 to help overcome many of the key barriers that we
16 have addressed.

17 DR. BIELORY: That addresses my next
18 question. I wanted to ask if you could forward a
19 list of 25 to 40 items to the council. Greatly
20 appreciate it. That's number one. Number two,
21 on the insurance end, do the EV vehicles have to
22 be more costly to repair or less costly to repair
23 as an insurance policy as an incentive to this
24 concept?

25 MR. HALL: I'm not certain about how

1 insurance agencies assess the costs of electric
2 vehicles. Unfortunately, that's not something
3 that we've looked at in too much detail.
4 However, I would add that electric vehicles, in
5 general, pay much less maintenance cost and
6 that's a key component of the reduced operational
7 cost of electric vehicles that allow people to
8 make that savings over the lifetime of the car.

9 And that's mostly just due to the
10 simpler mechanics of an electric drive train.
11 There is many fewer moving parts and you don't
12 have a transmission. Your brakes don't wear out
13 in an electric car because they are regenerated.
14 So in general, electric vehicles face much lower
15 cost maintenance cost and I would imagine that
16 will be taken into effect by all parts in the
17 automotive industry looking forward.

18 MR. EGENTON: Peter and Dale, if you
19 have some more information on that, you can again
20 forward it to the New Jersey Clean Air Council,
21 we would greatly appreciate it as we continue to
22 look at this issue. Any other questions?

23 Gentlemen, thank you again for joining us via the
24 webinar. We really appreciate it.

25 MR. SLOWIK: Thank you very much to

1 everybody there and enjoy the rest of your day,
2 and we appreciate the opportunity and we'll
3 follow up.

4 (APPLAUSE)

5 MR. EGENTON: Our next speaker
6 presentation will be Axel Carrion who is the
7 Director of State and Public Affairs and Michael
8 McDonald, Senior Director of Maintenance and
9 Engineering Sustainability with United Parcel
10 Service. And they're going to talk about the
11 future of reduced emissions. It's a
12 collaborative public private partnership.
13 Gentlemen.

14 MR. CARRION: Good afternoon,
15 everyone. Thank you, Mike. Thank you for the
16 New Jersey Clean Air Council for having us here.
17 My name is Axel Carrion. I'm the state
18 government affairs director for UPS here in the
19 east region. I'm also joined by Michael McDonald
20 who is not just my bodyguard, he's also our
21 resident expert when it comes to our alternative
22 fuel fleet around the globe.

23 So his official title is the
24 Director of Sustainability of Government Affairs,
25 so we're just going to, I don't have many slides,

1 so I'll kind of leave some time to open up for
2 some questions. We're also, by the way, the
3 third largest employer here in New Jersey, so we
4 have quite a presence, many employees, many, many
5 vehicles.

6 So I'm going to give this a shot.
7 So first, I'll go over our global sustainability
8 strategy, so before I discuss the alternative
9 fuel strategy, I just want to make sure I go over
10 our overall sustainability strategy. It's going
11 to focus on a couple different points here. So
12 first to operate efficiently, we want to make
13 sure we eliminate unnecessary work, leverage our
14 economy to scale, apply technology and improve
15 our asset utilization.

16 As far as leading by example, UPS
17 makes a commitment to ensure that we provide
18 leadership and innovation and sustainable
19 business practices. Obviously, acting
20 responsibly to conduct business with integrity,
21 set realistic goals, be accountable for our
22 results and increase the transparency. To
23 deliver the green services, we focus on
24 introducing new green products and services to
25 help customers reduce their carbon footprint.

1 As you can see, our environmental
2 efforts are part of a broad sustainability
3 strategy that shows the interconnections among
4 our environmental and social contributions. So
5 this is in part what drives our alternative fuel
6 strategy that Michael will be able to speak a
7 little bit more in detail. So however, there are
8 also some economic vehicles reasons for
9 investment in alternative vehicles. So when you
10 take a look at our global alternative fuel and
11 advance technology vehicles, this kind of gives
12 you a little overview of where we stand.

13 UPS obviously has a very large
14 fleet, over a 100,000 vehicles in our fleet, and
15 9,000 or close to 10 percent of our fleet uses
16 alternative fuel technology, and you can see,
17 it's over a very broad array of hydro electric,
18 straight electric, propane, bio methane,
19 compressed natural gas, liquid natural gas,
20 ethanol, composite diesel and hydraulic hybrid.

21 And it varies, and Michael will
22 speak a little bit to this, but it varies on what
23 part of the country that we're investing the
24 technology as far as what kind of technology we
25 deploy in certain areas, so that may vary, so

1 overall, a pretty good mix.

2 I should also note that there was a
3 recent announcement you may have seen. We have
4 an additional 50 electric packaged cars that we
5 put in order recently from work house and we also
6 put in, I believe it's still the largest order
7 with Tesla for 125 Tesla tractor-trailers, so be
8 on the look out for that.

9 Pretty exciting thing, pretty
10 exciting times. So we use what's called
11 basically, a rolling laboratory, and this really
12 connects to those 9,000 vehicles that I mentioned
13 in previous slides. So a few things I want to
14 mention here as far as our business case
15 considerations, but when we take a look overall
16 at this picture, you can see it's not a one size
17 fits all.

18 That's why we call it the rolling
19 lab laboratory, so we do deploy different
20 technologies based on the particular routes that
21 we dispatch on a daily basis, and we're always
22 willing to examine new type of technologies based
23 on the route and that kind of configuration, so
24 as you go through the four different deployment
25 strategy, focusing on the city center and

1 suburban routes.

2 So it's interesting to note that the
3 electric vehicles are not just for the city
4 center routes, but we can also use them obviously
5 in the suburban settings as well given the range
6 on the newer electric vehicles that we're
7 starting to see, so I'm going to move into, let
8 me explain where the rubber meets the road here
9 and how the states and cities can understand what
10 UPS uses to evaluate before we deploy alternative
11 fuel technology. So this will help us get into a
12 little bit more where we see that private public
13 type of partnership.

14 Obviously, you can see here, the
15 diesel gasoline, alternative fuel price spread,
16 the incremental cost of the alternative fuel
17 truck, the fuelling infrastructure is key. Shop
18 modifications, preferential parking. So this is
19 starting to come up a little bit, so most of the
20 time, when we have conversations about
21 alternative fuel, electric vehicles, we talk
22 about how many miles we can go in a vehicle and
23 you kind of see where you get the costs benefit
24 from that.

25 But what we're starting to see in

1 places like perhaps New York City, there's, for
2 example, congestion plans going on and a curb
3 side space is a big issue, so for companies like
4 UPS, that curb side space can also have just as
5 much value as perhaps how many miles you're
6 traveling in an electric vehicle, so we're in
7 pass, some folks might say, is it really worth it
8 because you're in a tight area, you're not
9 travelling that many miles.

10 That may be true, but there are
11 certain green zones that cities are looking to
12 deploy that give them of the larger
13 transportation companies that are going to be
14 there every day, so it's kind of a win-win.
15 Cities are focused on carbon emissions and
16 reductions, and at the same time, the large
17 transportation companies that are going to be
18 there every day, they may be willing to bring
19 some of the alternative fuel vehicles into those
20 pertinent areas because it's a nice exchange and
21 a nice win-win.

22 So that's something that's keeping
23 our mind open to all the different possibilities
24 we have. This is an area that we're definitely
25 exploring more. So obviously, incentives,

1 maintenance and the required internal rate of
2 return, so what are some of the things that
3 states and cities can help with. I'll mention a
4 couple here and then I will be done with my end.

5 The fuel price spread. When the
6 price of diesel, gasoline is low, it makes using
7 alternative vehicles more expensive. The shop
8 modification. There are modifications that we
9 have to make to the vehicle in order to meet our
10 high standards to deliver packages. The
11 maintenance, we have to train our folks how to
12 maintain new types of vehicles, natural gas and
13 electric vehicles. They have, obviously,
14 different issues than gasoline diesel.

15 So where are the areas where the
16 states and cities can help with the public
17 private partnerships, and I'll end with this.
18 Alternative fuel vehicles cost more than diesel
19 gasoline vehicles. So incentives obviously play
20 a big part in this. Fueling infrastructure, so
21 while UPS typically builds fueling stations on
22 site, many fleets may not be able to make that
23 kind of commitment to do so.

24 Preferential parking, I touch upon
25 that a lot, of the urban access issues. There's

1 a lot of room for conversation that, to build on
2 that, and the required rate of return. So
3 incentives help, but in order to make the
4 business case, there must be a pay back period
5 and that's typically that degree of five year
6 range. So with that, Michael, I don't know if
7 you have any comments. You want to add to that
8 on where we stand overall.

9 MR. MCDONALD: Thank you. So Axel
10 spoke on the rolling laboratory. Because of our
11 scale of economy with equipment, we have 9,000
12 pieces of equipment. 116,000 of that just
13 delivers packages. That's not including
14 tractor-trailers and about 500 plus aircraft and
15 that includes the aircraft that we also lease
16 around Christmas time.

17 We've also, since 2009, actually
18 spent about 750 million dollars towards
19 alternative fuel and that goes towards the
20 fueling stations that we put on site, also the
21 equipment. There's a big distinction with the
22 United States and I guess you could say -- over
23 there, they're getting to the point where they're
24 actually forcing communities to go electric where
25 they're actually saying, I'll say, Hanover,

1 Germany, where inside the city limits, you cannot
2 use a diesel truck.

3 So in cases like that we are forced
4 to come up with some kind of electric views. The
5 last mile where we've even used, you might have
6 seen, what's called E-bike, where we have an
7 electric bike that we use to start to deploy over
8 there to deliver packages. So if I switch gears
9 and take out all of the alternative fuels and
10 talk about electric. We're starting to get into
11 electric and I was in California with the Car
12 Board last week and California pushes very heavy
13 towards electric simply because it's zero tail
14 pipe emissions.

15 Because of that, they offer a lot of
16 incentives, not only for private people, but also
17 for fleets like UPS, and incentivize it to run
18 more zero at the tail pipe in emissions than is
19 currently now. I live in Georgia right now, so
20 if you switch gears and talk about the public,
21 they're already driving electric cars in Georgia,
22 so as far as the infrastructure goes, they take
23 like the charging posts and they'll put them in
24 front of the malls.

25 They'll put them in certain Shell

1 gas stations and they talk about putting them in
2 gas stations on the highway. This is something
3 to think about as you talk about, you move
4 forward looking at electrification of New Jersey.
5 So they make the access for the actual electric
6 easier. Generally, the cars now, I believe run,
7 like the Chevy Cobalt, they have a 200 mile
8 range.

9 200 mile range in this particular
10 area is pretty good because it's not really a
11 large area and also because of the congestion
12 they have what's called regenerative breaking
13 which it helps when it's congested because the
14 more stop and stop, keeps the car charged longer
15 than if you're on the highway. That is another
16 advantage if you're in an urban or a dense area
17 like New Jersey is.

18 The gentleman before spoke about
19 incentivizing. I think in Georgia, they put a
20 couple years back, I think they gave like a
21 thousand or \$2,000 to people, I think it was the
22 Prius, people bought who the Prius, they gave
23 them an incentive, public action incentive to buy
24 those vehicles and sold quite a bit of those
25 vehicles based on that alone.

1 So I know right now South Carolina
2 is trying to move towards electric. I know right
3 now North Carolina is trying to move towards
4 electric. As far as our private fleet, we are
5 testing, actually spoke about the UPS 50 work
6 force vehicles we're getting. We spoke about
7 Tesla, and a lot of people -- when we say Tesla.
8 UPS has to start somewhere, so if you can't
9 improve on something, you don't have something to
10 improve on.

11 So we take chances with companies
12 like the Teslas and the work horses. So even if
13 we do get a product at first and maybe it's not
14 perfect, at least we can get something that's
15 improved on in the future because the scale of
16 economy we have that advantage than other
17 companies have and I'll just say one thing.

18 Infrastructure is probably the
19 largest issue right now when it comes to
20 electric. For the regular consumer, if you put
21 up the charging stations around town, I believe
22 there's an app now, that you put the app on your
23 phone, you can pay a monthly fee and you can pull
24 up to any charging station and plug your car up.

25 For a fleet like ours, we have to

1 have the electricity run directly into the
2 building and because we dispatch trucks in the
3 daytime with our packages, that means our
4 charging would have to take place at night which
5 is a low demand cycle when it comes to
6 electricity.

7 The problem right now with that is,
8 there is no real formula of how to I guess make
9 the economy work short of incentives, so we are
10 finally getting to a point where we have electric
11 companies like I'll use -- for instance, where
12 they call us up, hey, if you want to get up in
13 the fun and games, what would it take for X
14 amount of trucks in this area and just through
15 that, they look at the set up of the building,
16 how many trucks, what kind of electricity comes
17 into the building and then we talk about the
18 cost, the charge at a certain time of night.

19 If you get Tesla, because tractors
20 run at nighttime, people would have to charge
21 those in the daytime which is an enormous amount
22 of electricity. So, again, we have to have some
23 kind of incentives, or if there is anyone in here
24 who is part of a electric company, that's some
25 things you need to think about is, aside from the

1 public charging stations, how are you going to
2 deal with fleets, whether they be city fleets or
3 private fleets that decide maybe they want to use
4 electric vehicles in New Jersey. You have to
5 think about how you're going to go about, come to
6 some kind of, lack of a better word deal, on how
7 to the whole electricity thing is going, what the
8 pay backs is.

9 MR. CARRION: A scale wise, package
10 cars, that's your regular driver that your spouse
11 was nice enough to spend the day before ordering
12 on-line. So we have approximately 2500 of those
13 vehicles and we about another thousand tractors
14 operating in New Jersey.

15 MR. EGENTON: Gentlemen, thank you.
16 Questions from the council?

17 MR. WESTON: As a company with a
18 global footprint, I'm interested in your take on
19 this. We heard from one of our earlier speakers
20 that one of the differences between New Jersey
21 and California in terms of deployment of these
22 vehicles is the weather and that it obviously
23 gets cold here. It snows here.

24 Is that something that you have
25 found to be a deterrent in terms of deploying

1 electric vehicles in New Jersey? How much of a
2 factor is the weather for your company when
3 you're talking about which type of fuel to use
4 for various vehicles?

5 MR. MCDONALD: The only issue is
6 electric, which vehicles we just deployed, we're
7 actually going to put some of those in places
8 like Michigan with a different design and see
9 kind of how that combats the cold. Summer, which
10 I don't believe they have in the private sector
11 is the heat because the way the electric runs you
12 don't have the increase in antifreeze which blows
13 the heat in your vehicle and you can't have that
14 anymore.

15 You have to have a work around, I
16 guess, engineering wise. So we have a new
17 integration coming out in two months, and we'll
18 dispatch some of those in the north and we'll put
19 some of them in the south to see how they do
20 before we order more.

21 DR. BIELORY: In terms of the
22 perspective that one size does not fit all.
23 Meaning you have to model it to the area regions
24 and the needs of the consumer in that regards.
25 But one specific one. You have five different

1 ZEVs, different types of zero emitting vehicles.
2 Can you give an assessment of the cost analysis
3 of maintaining them?

4 You've had them for a number of
5 years. Can we get some information from you,
6 what does it take from compressed natural gas to
7 ethanol to hydraulic hybrids, what's it take? I
8 have no idea. I'm sitting here as a physician.
9 I have no idea. If you want to make a
10 recommendation, what's the priorities? You have
11 the data. If we actually can take a look at
12 that, that would be extremely helpful.

13 MR. MCDONALD: I don't have it in my
14 head. Compressed natural gas, propane has been
15 very good for us because it's become very low
16 maintenance and you use a GM engine that's just
17 been converted so it's nothing really fancy with
18 that. The electric, like the hybrid electrics,
19 they were costly because you kind of had two
20 different systems working sometimes against each
21 other. And that's why, as we go forward looking
22 to just to go all electric, all electric is
23 supposed to be cheaper of maintenance wise.

24 DR. BIELORY: Supposed to be.

25 MR. MCDONALD: You're taking out

1 oil. You take out oil, you're also taking out
2 having to get rid of environmental waste. You're
3 taking out fluids. You basically have an
4 electric motor, something to charge the electric
5 motor and a drive shaft. So you're taking out
6 all the components of the engine, so technically,
7 it's supposed to be cheaper to maintain.

8 DR. BIELORY: Supposedly is what
9 we're working with. I would like to see if there
10 is hard data on that perspective.

11 MR. EGENTON: Gentlemen, thank you
12 very much.

13 (APPLAUSE)

14 MR. EGENTON: Moving along. We have
15 Hilary Leifsen, Sustainability Developer with
16 IKEA Purchasing Services, and she will be talking
17 about Zero and Near Zero Emissions Heavy Duty
18 Vehicles, A Shipper's Perspective.

19 MS. LEIFSEN: Good afternoon,
20 everybody. My name is Hilary Leifsen. I'm a
21 transport sustainability developer with IKEA
22 Purchasing Services. Today I want to talk a
23 little bit about some of our experience with
24 electric in heavy duty class eight and some
25 recommendations overall. So just a quick

1 overview of sustainability at IKEA, our
2 background in that, a little more about our past
3 experience with the electric vehicle.

4 Some things we see as market
5 conditions and challenges that present some
6 hurdles for electric vehicles adoption in this
7 field and some other opportunities as well. So
8 on a high level, we have what's called our people
9 and planet positive strategy, and this is really
10 the governing sustainability strategy for IKEA
11 and it has three pillars. We like threes at
12 IKEA.

13 First one is to inspire and enable
14 millions of customers to live a more sustainable
15 life at home. We want to strive for resource and
16 energy independence, and finally, to take the
17 lead in creating a better life for people and
18 communities impacted by our business. When it
19 comes to transportation, we're really hitting on
20 number two and three in a big way.

21 We know we have an impact. We know
22 it's resource intensive and we want to address
23 both of those. So this strategy was launched in
24 2012. It's actually currently in the process to
25 be revised with the hope of aligning with the UN

1 Sustainability Development Goals. And the new
2 strategy will focus pretty much on similar
3 pillars of climate change, inequality and
4 unsustainable consumption.

5 Transport, what are we doing in
6 transport. We are the largest home production
7 retailer in the world. Meaning, a lot of things
8 need to move between a lot of different places
9 across the globe. In the U.S. and Canada, we
10 currently have 60 stores and it's growing. We
11 work with a network of 30 plus carriers who have
12 their own fleets. IKEA does not own any trucks.
13 And so that's just one clarification I want to
14 give here is that obviously, if it was up to us
15 and we could wave our magic wand, I probably
16 wouldn't have a job.

17 And we're also not involved in final
18 mile delivery. That's a point of clarification I
19 like to give. There is a separate IKEA entity
20 that does take care of that, so I'm here strictly
21 on class eight heavy duty tractor-trailers. So
22 unfortunately, like I just said, as a shipper, we
23 don't have any direct procurement control over
24 the fleets we're using.

25 So what does that mean? We have to

1 try to work with our carriers that we contract
2 with to convince them to use alternative fuels on
3 our behalf. Easier said than done. A lot of the
4 times there is a lot of valid push back and a lot
5 of times it does come down to dollars and cents,
6 but what we try to do, as best we can, is
7 identify opportunities for partnerships, pilot
8 projects, funding applications in conjunction
9 with our carriers and any other ideas, I'm open
10 to suggestions.

11 So I'll talk about a little bit past
12 experience. Actually, last year, fiscal year
13 '17, we did 8,000 shipments were moved on
14 alternative fuels. By we, I mean our carriers
15 did them on our behalf. And one specific thing
16 we did a lot of. It, unfortunately, ended last
17 year, but it was something we're pretty proud of.
18 We were involved in a pilot project in the port
19 of Los Angeles with a full electric class A
20 truck, so I'm going to dive a little bit more
21 into that.

22 These are the results of our
23 electric drayage project. Drayage is moving
24 things to ports to nearby either yards, transfer
25 sites, distribution centers, you name it. So

1 basically the truck is starting at the port of
2 Los Angeles or Long Beach and it was moving 14 to
3 15 miles to our carriers equipment transfer site
4 nearby in Compton.

5 Over the course of the pilot, which
6 ran from September of '15 to last July in the
7 summer, it did about 275 IKEA shipments at a
8 total of 9,300. So it doesn't sound like a lot,
9 but for a very new technology that hadn't really
10 been used, we were pretty happy with that.
11 Highest peak use, when it was really working
12 great, according to plan, we got about nine
13 percent shipments covered in the month of
14 September 2016, which was great.

15 And this kind of totaled out to
16 about 3.3 metric tons of CO2 reduction and we
17 didn't have the ability to quantify the air
18 pollution reduction, but we know obviously that's
19 one of the major benefits of electric and
20 something that ports are really looking into as
21 they should be. So as I've said, we work with
22 carriers for all this stuff.

23 They did have some feedback on the
24 pilot project. This is a tracker we had access
25 to on-line which is really cool, gave us live

1 stats on the truck. The carriers, one of the
2 biggest ones was maintenance. Early on, and I'm
3 not speaking of the lower cost. I'm talking
4 about the time down here.

5 Basically, when the truck would go
6 down because of the newness, because of all that,
7 because of mechanics not really knowing.
8 Learning in real-time essentially, there were
9 some downtime and that maintenance sort of cost
10 our carriers in reliability and operational
11 costs. The driver interest was another really
12 interesting one. They related to me that early
13 on drivers were really excited to try out this
14 truck, kind of raring to go, a lot of volunteers.

15 And over time, that interest kind of
16 waned, and the reason was basically, it cut into
17 their ability to earn a productivity bonus. So
18 something, as you're probably all aware, ports in
19 Los Angeles, super crowded, most crowded in the
20 country I believe. Wait times can be extremely
21 long, and drivers actually get incentive bonuses
22 on the numbers of turns they can complete in one
23 day.

24 The electric truck would have to
25 have a midday charge, and that really cut into

1 the time as well. So wait times, in addition to
2 charge times, kind of cut into their
3 profitability. So drivers kind of lost interest
4 over time in using this. Idle time is another
5 consideration. Like I mentioned, the port wait
6 times are super long.

7 Waiting at the port drained the
8 battery in Los Angeles. You have the air
9 conditioning running. You're sitting there,
10 you're essentially idling an electric truck.
11 From what I've been told, since then, newer
12 models kind of addressed this with different
13 power systems to do the air conditioning as well
14 as the operating of the drive train. So that's
15 something good.

16 It was nice to hear kind of a key
17 learning from this project. That being said,
18 we're still really excited about electric. We're
19 still looking into it in a lot of our network,
20 but similarly to UPS, it's not a one size fits
21 all type of industry. Obviously, we're spanned
22 across two large countries and we need to take
23 that into account, so we look at marketability of
24 all types of different fuels. So bio fuels, we
25 see this as pretty fully deployed. Mainly in

1 line with diesel.

2 Natural gas we also see as pretty
3 deployed. We do have a lot of natural gas trucks
4 running in our network. The hope there is we can
5 kind of bridge from the fossil sources to bio
6 gas, so things from farm waste land, fill waste,
7 et cetera, we're hoping that kind of scales to
8 really reduce the emissions there. Electric, we
9 see right now, it's currently in demonstration
10 and low deployment phase.

11 One of the big hurdles again being
12 charging. Everyone has said this today, charging
13 is a big hurdle. People are reluctant to invest
14 in this major technology without the reassurance
15 you're going to be able to get between point A
16 and point B, but we're still really getting
17 excited about it and we've seen this cost really
18 come down over time which is great.

19 Fuel cell, that's another one we
20 kind of keep an eye on. Right now this is very
21 expensive in the research and demonstration
22 phase, but we are definitely keeping tabs on that
23 one because it's something we're interested in.
24 Some other market challenges. Performance
25 concerns compared diesel. Obviously diesel is

1 carrying all the infrastructures diesel at the
2 moment.

3 Range is the biggest hurdle for a
4 number of these alternative fuels, especially
5 electric. At IKEA we really look at it as the
6 best kind of case for electric right now as these
7 port to distribution centers move, drayage what
8 we call it. So when we're thinking about that,
9 we like to tailor our approach with carriers.
10 Carriers, we know who do the short distances for
11 us, that's who we take electric conversations
12 with. Carriers who are driving from Texas to
13 California, we're not really going after them
14 with electric, just based on, you know,
15 priorities.

16 Some handling and acceleration
17 concerns are another thing. We actually hear
18 from drivers. What I'm learning from the market
19 though is that this is sort of being addressed.
20 Tesla, they can say they can get from zero to 60
21 a lot faster than a conventional diesel truck
22 which they claim will improve driver experience,
23 driver safety, general road safety for passenger
24 cars emerging on the highway.

25 That's always one of the scarier

1 things when you see a big diesel ramping up. The
2 increased weight for fuel tanks and batteries can
3 be another consideration. There's pretty strict
4 regulations around this. I'll touch on this a
5 little bit later, but something we see as a
6 concern for filling trucks. The additional
7 weight of batteries and tanks being something.

8 And then we've all said it,
9 infrastructure availability is a really big one.
10 It's expensive to install. We keep getting the
11 answer -- there's no real -- when you say how
12 much would it cost to install a class A charger,
13 it depends. It's not clear cut. It depends on
14 utilities, where you are, all these things.

15 That's the kind of thing we go to
16 carriers and we ask them about this, and they go,
17 what about charging? And we don't have great
18 data for them. And like I said, diesels aren't
19 very well established. It's comfortable.
20 They're used to it. It's off all major highways,
21 really entrenched infrastructure there. Price.
22 We do see business agencies becoming a lot more
23 competitive.

24 My best thing I can speak to is
25 electric because that's what I've been working

1 on. I've been with IKEA for a year and-a-half
2 now. And when I started a year and-a-half ago, I
3 was getting \$400,000 for an electric class A
4 truck and now we're hearing Tesla \$150,000, so
5 you see how fast this can move. Every step wise
6 it's gone down. We're excited about that.

7 That being said, diesel is still
8 cheaper, so incentives are a big one there for
9 making that competitive. So what do we see as
10 some public sector opportunities. One is
11 incentivizing fleets. We have already started to
12 talk about this. Easy to apply for, grants and
13 vouchers are a big one, so having states support
14 there. Additionally, vouchers at the point of
15 sale. I believe Dale was mentioning that in his
16 talk.

17 Really, really nice thing when
18 fleets are trying to make procurement decisions,
19 sometimes they don't want to do extra paperwork.
20 They want to have that applied to the sticker
21 price at the point of purchase. Partnering with
22 utilities. In this case, EV charging would be
23 another thing. Working with them to get clearer
24 answers on, not just what it's going to take off
25 the back, what it's going to take to install and

1 what the rates are going to be in cases like that
2 would help us sort of set their mind at ease.

3 Incentivizing drivers, as I
4 mentioned, to be kind of different depending on
5 who is driving. Basically, some ideas we have
6 here are priority processing at ports, so we do
7 work in the Port of Newark as well as
8 Philadelphia locally. Wait times, again, can be
9 a struggle and I'm sure drivers will be a lot
10 more eager to drive an EV truck if they knew they
11 were going to get out of that port a lot quicker.
12 I don't have a suggestion on exactly how to do
13 that, but I think working with the Port Authority
14 would be a good approach there.

15 Fuel is really the big expense,
16 especially in the case of owner operators.
17 They're basically running their own small
18 business through their trucks. Finding ways to
19 help them out and incentivize that switch is a
20 good approach. And just expanding the fueling
21 infrastructure. I think everyone said it. Fast
22 fueling and charging places along the major
23 corridors, similar to where diesels are already
24 placed, so it's kind of within peoples already
25 existing network would be a good approach and it

1 would help to eliminate the range anxiety. That
2 would be a big one.

3 A couple more. These are a little
4 more on the regulation side. We do know about
5 these European cities with urban diesel bans. I
6 think Michael just talked about it in the last
7 presentation. When a carrier has their -- it can
8 kind of help to drive this change a little more
9 quickly. We see the same page reports of Los
10 Angeles and Long Beach. Basically, they come out
11 with their Clean Air Plan saying there will be no
12 diesel vehicles on the register and the eventual
13 phase out starting 2023, so we're getting really
14 close to that.

15 And Pennsylvania, a different type
16 of regulation that's sort of is more of an
17 incentive I guess you would say. It has a gross
18 weight vehicle exemption for natural gas trucks
19 knowing that the tanks are heavier. Basically
20 saying it's okay, you can go over the weight.
21 Similar stuff for battery electric would be a
22 good idea. Diesel taxes are another one we're
23 starting to see.

24 This is actually really hitting on,
25 we're getting a lot of requests from carriers for

1 your rate increases in California due to the
2 diesel tax so that's the kind of way. Fuel is
3 their biggest expense when it comes to operating
4 a trucking company so this is one we see and
5 waiving taxes for flip side of that is waiving
6 taxes for the lower emission alternatives.

7 So natural gas charging, what have
8 you, different choices there. And obviously, I
9 don't think we're going to be tackling cap and
10 trade today, but what we did see in California is
11 they're using the funds generated cap and trade
12 program to be ported into their transportation
13 funning. We think this is a great approach
14 applied directly as vouchers, again, is a good
15 way to kind of streamline the adoption.

16 Here is some things we've tried just
17 real quick. One of them is just speaking with
18 carriers about their experience to get an
19 understanding of how it works in reality. And to
20 understand the operational job as to benefits and
21 what they're looking for when it comes to trucks
22 and their fleet. What's the driver experience.

23 Are there any special arrangements
24 needed and are there opportunities to partner on
25 strategic -- like a grant application or a pilot

1 project, something like that. Another thing we
2 tried is to consider basically putting these
3 requirements into our bidding process. So when
4 we do, let's say open a new store or open a new
5 distribution center, can we embed a requirement
6 saying, you can bid on this business, but you
7 have to bid electric or you have to bid with
8 natural gas or you have to bid with rail.

9 This is something we're starting to
10 really experiment with, and we've seen some
11 initial success here, not necessarily with
12 electric, but we did have some pretty positive
13 rail results which we thought was a good thing.
14 We also looked at the mapping available
15 infrastructure that's out there in the United
16 States just to really see what can be simulated
17 in our network and we always are looking to
18 identify grants and opportunities available in
19 the different states, and that's it for me.
20 Thank you very much for the time.

21 (APPLAUSE)

22 MR. EGENTON: Thank you. To move on
23 to our next speaker is Robert May. He's the
24 managing director and staff counsel of the New
25 Jersey Coalition of Automotive Retailers. Also

1 known as NJ CAR. And he's going to talk about NJ
2 CAR's Perspective on the Future of EV Sales in
3 New Jersey.

4 MR. MAY: Good afternoon. On behalf
5 of NJ CAR, we thank the New Jersey Clean Air
6 Council for inviting us to participate today. NJ
7 CAR is a statewide trade association here in New
8 Jersey that represents 530 franchise new car
9 dealers who sell motor vehicles to consumers.

10 There's no doubt that the clean car
11 mandates imposed by the state and federal law
12 have given rise to new more fuel efficient and
13 environmentally friendly motor vehicles, but the
14 sad fact is that alternative technology vehicles
15 still account for just a small piece of the new
16 car market here in New Jersey.

17 The trend for alternative fuel
18 vehicle sales have been disappointing. In fact,
19 almost stagnant. In 2008, New Jersey new car
20 buyers bought just 10 zero emission vehicles.
21 Last year, EV sales reached 1900 units, which is
22 a 45 percent increase over 2016, and that's the
23 best year over year increase in EV sales ever in
24 New Jersey.

25 Best progress. The EV still

1 currently accounts for just three tenths of one
2 percent of the new car market here in New Jersey.
3 Last year, for example, we sold almost 550,000
4 new vehicles. And this year, New Jersey's Clean
5 Car Law requires that 4.5 percent of all vehicles
6 delivered by manufacturers for sale in the garden
7 state must be ZEVs.

8 That's 24,000 vehicles, more than 12
9 times the number sold last year, and that's just
10 the start. The ZEV sales mandate ramped up
11 exponentially from there. Take a look at this
12 slide. The bottom line projects the number of
13 ZEVs that could potentially be sold if we
14 continue last year's incredible 45 percent growth
15 every year through 2025.

16 The deep line on the top shares the
17 growth and the number of ZEVs mandated to be sold
18 each year in New Jersey under the Clean Car Law.
19 We estimate that the existing clean car mandates
20 will require that dealers sell more than 550,000
21 ZEVs in New Jersey between 2018 and 2025. Even
22 with 45 percent growth, every year, year after
23 year from now until 2025, we will remain well
24 behind the number of vehicles that are mandated
25 to be sold.

1 Now, there is some good news. There
2 are currently about 40 models of plug in electric
3 vehicles currently available in the market and
4 there are more than 60 new electric vehicle
5 models scheduled to be introduced between 2018
6 and 2021 by various manufacturers. Naturally,
7 new car dealers want to sell all these cars and
8 many more. That's what they're in business to
9 do.

10 But let's face it, dealers want to
11 sell vehicles that consumers want to buy. And
12 right now consumers do not want to buy ZEVs at
13 anywhere near the numbers mandated. This is a
14 major concern for new car dealers, and it is
15 compounded by the fact that available ZEV product
16 is not priced right. Take a look at this slide.
17 I'm lucky that I got that slide to appear because
18 I'm even more technically challenged than my
19 couple of prior speakers.

20 In this slide, it shows you the gap
21 in price between internal combustion engine
22 vehicles or ICE vehicles compared to electric
23 vehicles, and in the some cases, this spread gets
24 rather dramatic. We all know that battery and
25 manufacturing prices for EV's are coming down,

1 but not fast enough. And there's another legal
2 stressful issue here in New Jersey that compounds
3 the problem.

4 New Jersey's Clean Car Law doesn't
5 actually require auto manufacturers to place
6 vehicles in service in New Jersey. It simply
7 requires manufacturers to deliver vehicles in New
8 Jersey to dealers. This deliver for sale mandate
9 allows auto makers to earn their clean car
10 credits by simply dumping ZEVs on dealers lots in
11 New Jersey. If manufacturers can gain the system
12 by simply delivering cars to dealers, they have
13 no real incentive to equip or price ZEVs to sell.

14 Clean car inventory in turn does
15 nothing to clean the environment here in New
16 Jersey and unsold inventory can boast a heavy
17 financial burden on New Jersey's new car dealers
18 who finance their inventories. These financial
19 and structural issues have impeded the ZEV sales
20 but so has the lack of existing infrastructure as
21 you've heard many times today from other
22 speakers.

23 Right now, New Jersey only has about
24 517 charging stations throughout the state.
25 That's compared to an estimated 3,500 gas

1 stations with more than 20,000 gas pumps.
2 Clearly, we have a long way to go to alleviate
3 range anxiety. Infrastructure needs to be
4 dramatically expanded.

5 Park and rides, municipal parking
6 lots, shopping malls, commercial office
7 complexes, big box stores, grocery stores, et
8 cetera, virtually any place where individuals
9 park vehicles for any extended period of time are
10 prime locations for charging stations. Buildings
11 and its facility owners need to know three
12 things.

13 Number one, there's a current demand
14 for charging stations. Two, that demand is
15 growing. Three, electric charging stations are
16 an amenity that consumers will come to expect
17 just like the public rest room, complimentary
18 WiFi, free coffee or a water cooler. And four,
19 offering charging facilities is and will be
20 increasingly good for business.

21 It's a marketing tool and business
22 differentiator that can reduce real benefits to
23 business bottom line. Since New Jersey's Clean
24 Car Law was enacted more than a decade ago, NJ
25 CAR has warned that it's going to be difficult to

1 grow the ZEV market from where it is today to
2 where it must be in 2025 and beyond. We need an
3 aggressive game plan to offer consumer incentives
4 and build robust charging infrastructure.

5 NJ CAR is pleased to be working with
6 other EV stakeholders as part of a group called
7 Charge EVC to help develop that game plan.
8 Charge EVC is a coalition made up of a diverse
9 group of organizations including technology
10 companies, utilities, environmental groups,
11 community advocates and others. Charge EVC's
12 mission is to design and promote policies that
13 boost EV sales and will lead to greater
14 environmental and economic benefits.

15 I can tell you this, that if state
16 and federal regulators, elected officials, auto
17 makers and public utilities pulled together to
18 address the most pressing infrastructure and
19 affordability challenges, franchisee car dealers
20 in New Jersey and across the country will be
21 relentless in promoting, selling and delivering
22 electric vehicles to more and more consumers
23 nationwide.

24 For our part, NJ CAR has partnered
25 with EV advocates and we are developing

1 innovative training and marketing strategies to
2 enable neighborhood car dealers to meet and grow
3 electric vehicle customer demand. Working
4 through charge EVC and Plug In America, NJ CAR
5 has invested in an EV sales person training for
6 the certification program.

7 To ensure dealerships and dealership
8 sales personnel are properly trained, and they
9 are prepared to address the unique needs of EV
10 consumers. We'll be partnering with other EV
11 stakeholders to create Ride and Drive and hands
12 on experiences to introduce EV curious buyers to
13 the full range of setting a new product in the
14 market place. There's a lot going on and dealers
15 and auto makers are busy preparing to meet the
16 growing EV demand.

17 But we have a lot of work to do, and
18 the New Jersey Clean Air Council can help by
19 recommending, one, revisions to the New Jersey
20 Clean Car Law to require that ZEVs be sold or
21 leased or placed in service before an auto maker
22 can earn its credits towards its clean car
23 mandate. That legislation is currently pending
24 in the Assembly as Assembly Rule 1223.

25 Secondly, government should put its

1 money where its mouth is and offer up real
2 financial incentives to consumers like extending
3 the sales tax exemption beyond pure ZEVs to
4 include a partial exemption for hybrid and other
5 advanced technology clean cars. And finally,
6 government can enact legislation for providing
7 for the imposition of a social benefit charge on
8 utility bills to fund, not only cash and
9 incentives, but to encourage the investment on
10 ZEV infrastructure throughout the state and there
11 are a number of bills that would do that pending
12 currently in the Senate and the Assembly.

13 On behalf of NJ CAR and the 530
14 members, I thank you for the opportunity to share
15 our perspective with regard to the future of EVs
16 and New Jersey, and I would be happy to answer
17 any questions that you may have.

18 MR. EGENTON: Thank you, Robert.
19 Questions from the council?

20 MR. WESTON: So in your opinion, the
21 lesson from the clean car legislation here is
22 that mandates simply don't work and legislatively
23 dictating what the technology it's going to be.

24 MR. MAY: It's not going to get us
25 to where we need to be.

1 MR. WESTON: Right.

2 MS. BLUHM: I joked around about
3 minivans are electrified, it's not going to be as
4 common place either, but just even looking at
5 your chart of different vehicles and pricing,
6 would you say that, in terms of the deployment,
7 this is more of a third car option from the
8 perspective or --

9 MR. MAY: Currently? Right now,
10 yes.

11 MR. EGENTON: Any other questions?
12 Robert, thank you very much.

13 (APPLAUSE)

14 MR. EGENTON: Next we have Steve
15 Douglas. He's the senior director of Alliance of
16 Automobile Manufacturers, and he'll discuss the
17 Update and Recommendations for the ZEV Market
18 Development.

19 MR. DOUGLAS: Thank you very much.
20 I'm Steve Douglas with the Alliance of Automobile
21 Manufacturers representing 12 of the world's best
22 car companies, and I sincerely appreciate the
23 opportunity and the invitation to be here today.
24 A little bit about myself. I spent 13 years in
25 the Navy as an officer on submarines. For the

1 last 22, going on 23 years now I've worked for
2 the car companies in California on the vehicle
3 emission regulations.

4 So everything from tele pipe
5 exhaust, the labels on cars, that check engine
6 light on your car, the personal favorite has
7 always been California's electric vehicle
8 regulations. I started with the EV regulations.
9 I put my daughter through college with the EV
10 regulations, and I hope to put my grandson
11 through college too, but this is undoubtedly the
12 most exciting time in the industry for this
13 technology.

14 We're making great strides, so
15 that's what I really want to touch on today is
16 where we are and where we're going, so the
17 agenda. I want to touch a little bit about on
18 the advanced internal combustion engines and
19 hybrids. We made unimaginable progress with
20 those. Both greenhouse gas and criteria ozone
21 smog. I want to touch on that.

22 Zero emission vehicles, I want to
23 talk about where we are today and where we're
24 going in the future and get to my
25 recommendations. And I'm both a Navy and an

1 engineer, so I have 30 slides. You're going to
2 get a Power Point, so it's not going to be that
3 good, so bear with me. I don't expect to get to
4 all of these.

5 Fortunately, the advantage of going
6 at the end of the day, any great insights I might
7 have had have already been made by someone else,
8 so hopefully, I can just summarize there. So
9 with that, advanced internal combustion engines.
10 What I did is I pulled this from the Fuel Economy
11 Dot Gov website, and these are combined fuel
12 economies, so this is actually what you get and
13 so I had a Prius in 2009 and I got 42 miles per
14 gallon. Wow, it's just amazing, right.

15 But the Prius is a fairly small car,
16 but today, you have the Camry, the Accord, the
17 Malibu, the Fusion, the Avalon. These are huge
18 cars and they're getting 40, 50 miles per gallon.
19 That's what you actually get, not if you're going
20 down hill at 50 miles an hour, so to me that's
21 pretty extraordinary. That's on the greenhouse
22 gas fuel economy site.

23 And the story is the same on the
24 smog criteria side, so if you look, like
25 vehicles, cars and trucks that our members

1 produce, we're about a third in 2000. That was
2 five years after I started. Today, we're down
3 somewhere between 10 and 15 percent of the total
4 smog forming emissions. By 2035, we're only five
5 percent of the total smog forming emissions, so
6 this is based on California.

7 I couldn't find any projections for
8 New Jersey, but they're similar, so I looked at
9 the 2011 projection from New Jersey and it was
10 18 percent, I think, so we're right there in line
11 for 2011, so this is the kind of progress we've
12 made and that happened since I've been here.
13 It's not a coincidence. I love this slide.

14 This is cars versus leaf blowers and
15 this is California, Air Resources Board, they did
16 a study and they looked at leaf blowers, lawn
17 mowers, all the small equipment. And this is
18 what I find extraordinary. By 2021, lawn mowers
19 and leaf blowers will produce as much pollution
20 as all of the passenger cars in the Los Angeles
21 basin.

22 By 2031, leaf blowers and lawn
23 mowers produce twice as much pollution as all of
24 the passenger cars in the Los Angeles basin, and
25 that's not because there's lawn and leaf mowers

1 in LA. That's because cars are getting
2 extraordinarily clean, so that's what I want to
3 touch on there. We're making progress. These
4 are really the work horses.

5 The air is getting cleaner in New
6 Jersey, in Los Angeles and across the country.
7 It's not because of exotic technology. It's
8 because of the progress that we're making on
9 gasoline engines, but that's just the beginning.
10 Zero emission vehicles, so first, so we have
11 three different technologies as I mentioned.

12 Plug in hydro electric vehicles.
13 You plug it in at night. You wake up in the
14 morning. You drive on somewhere between 20 and
15 50 miles and then the gas engine starts up and
16 you can drive another 400, 500, 600 miles for
17 some people so that's a plug in hybrid. Battery
18 electrics are just batteries, so you plug it in.

19 In the morning you can drive -- I
20 have an electric vehicle and have for a number of
21 years, so for mine, it's 85 miles. For others
22 it's up to 250, and then you plug it in again and
23 it takes four to eight hours to recharge it and
24 then you go another 85 to 150 miles. Fuel cell
25 vehicles, and this was mentioned before. Fuel

1 cell vehicles are here. We have those.

2 There's no reason we have them in
3 California and not here as far as the regulation
4 goes. It's because we have fuel in California.
5 When you have fuel in New Jersey, I can guarantee
6 you that the companies will bring fuel cell
7 vehicles. They're ready, they're selling them
8 today in California because there's an
9 infrastructure and they will do the same in New
10 Jersey and New York.

11 So for those, you fill them up. It
12 takes about a minute at a hydrogen station. It
13 goes 300, 350 miles. Fill it up again, five
14 minutes you're back to the road. That's hydrogen
15 fuel cell vehicles. A couple of things on those.
16 The advantage of a fuel cell vehicle is that it's
17 completely scalable, so it works in a small car
18 just as well as it works in an SUV, just as well
19 as it works in an 18 wheeler.

20 And in fact, Toyota has an 18
21 wheeler that they're testing in the port of Long
22 Beach right now that's a fuel cell vehicle. So
23 it's completely scalable and it works on farm
24 trucks, so the issue there is with the fuel
25 supply. So we do have regulations in place. We

1 do have to push these vehicles out. What are
2 manufacturers doing?

3 Aggressive vehicle pricing. I know
4 the affordability issue comes up. 70 to 80
5 percent of these vehicles are leased. 70 to 90
6 percent of these vehicles are leased and not
7 sold. The MSRP is what it is, but lease is the
8 transaction price. When you look at these
9 incentives that provide a couple thousand, 2500
10 in California, that wipes out the entire down
11 payment, so all you have is monthly lease price
12 and again, 80, 85 percent of the vehicles are
13 leased, so more models, more variety, longer
14 range, a better performance and more options.

15 So this is what we have today. 41
16 ZEV, and I tried to pull out any that were not
17 available in New Jersey so nine different battery
18 electric vehicles, 29 different plug in hybrid
19 electric vehicles. These are all available today
20 and I put a little star beside those that have
21 all wheel drive, I know the weather, snow
22 concerns. I put a star.

23 I think there's a dozen or more all
24 wheel drive, so there's something for everyone.
25 So finally, where are we going? That's where we

1 are. So in 2016, the California Air Resources
2 Board, they talked to all the manufacturers and
3 they said what are you bringing to market, so
4 they summarized all that in the report last year
5 and they said, 70 different models by 2021, so
6 that's 37 different battery electric vehicles.

7 24 of those have over 200 mile
8 electric range. But this is now, over the last
9 nine months, virtually every major OEM has
10 announced all the electrification plans. You see
11 Mercedes, just in January this year, 10 BEVs by
12 2022. Ford, 16 by 2022. Toyota, 10 in the early
13 '20s. GM, 20 by '23. It just goes on and on,
14 every major OEM. So the ZEVs are here today and
15 many, many more are coming in the future. They
16 come in two wheel drive, all wheel drive. They
17 come in a small car, large car, SUV, minivan is
18 here today.

19 Every technology there's longer
20 range, shorter range. There's economy, there's
21 luxury. There's everything in between, and I
22 estimate the auto maker investment by 2025 is
23 going to head 100 billion dollars in this
24 technology, so the companies are committed to
25 electrification. So the problem isn't the lack

1 of vehicles. It's the lack of customers, so this
2 is not just something that we figured out.

3 The California University of
4 California Davis, they're from the Institute of
5 Transportation and Studies. They had an article
6 this January that said auto makers policy and
7 policy makers may be on a path to electric
8 vehicles, customers are not. So that's a focus
9 on the customers and what we can do. I think
10 everyone is familiar. This is the ZEV market.
11 It's growing. It's growing everywhere. It's
12 growing in the New Jersey, it's growing in the
13 northeast, it's growing in California, it's
14 growing nationwide, and as more vehicles come on
15 the market, more people get experienced.

16 Everyone who drives one, I drive
17 one. I love the way it drives, so it kind of
18 feeds itself. So now I come to my recommendation
19 and develop a plan. You know, a detailed
20 comprehensive governor signed ZEV action plan.
21 It has to include very specific actions, the time
22 frame for the actions. The agencies that are
23 involved because many of these involve multiple
24 agencies or multiple departments, but it needs
25 one agency that's responsible and it shouldn't be

1 just one agency for everything.

2 We can't put DEP as responsible for
3 everything because it's not appropriate, so that
4 is kind of my overarching and I have 30 more
5 slides, but that's kind of the first thing and
6 I'm not going through all 30 slides.

7 MR. EGENTON: Steve, I want to give
8 you an extra five minutes respectfully because
9 you did come out and travel, so if you wanted to
10 go over one or two more slides, please do so.

11 MR. DOUGLAS: Thank you. Just a few
12 things. There is a couple things. There's these
13 great examples California had in 2016. We
14 adopted the ZEV action plan. It includes, it's
15 47 pages. It has detailed, not requirements per
16 say, but detailed actions for agencies and it
17 will say the different agencies involved and who
18 is responsible and the timeline.

19 NESCAUM is developing a ZEV action
20 plan as well right now, so I think that's going
21 to be out later this year. So all of that, but
22 I'd encourage you to take a look at those. There
23 is so many great ideas I've heard today. A lot
24 of them are also covered in mine, but I would --
25 so I think developing a plan, just that process

1 of going through it is really helpful.

2 A few things. These are the things
3 we've identified the last couple years.
4 Incentive infrastructure, simple low cost fueling
5 and consumer education awareness. Equity is
6 critically important. And also, I guess when
7 you're developing a plan, it's important to have
8 everyone at the table and input, auto makers,
9 utilities, environmental justice advocates, NGOs.

10 So having all those to provide input
11 because I think a lot of these kind of stretch
12 across the different areas. So if you're looking
13 at equity, equity has to be included whether
14 you're setting up incentives, when you're setting
15 up infrastructure, how do you adjust for
16 environmental justice communities. Affordability
17 incentives, these have all been covered before.

18 These have all been covered before.
19 Even Georgia's precipitous fall from grace. They
20 were number one for years, then they eliminated
21 their incentives and sales fell 80, 90 percent.
22 Non financial incentives. I have an electric
23 vehicle, at the time I got free parking. That
24 was a 200 dollar per month option in the city of
25 Sacramento.

1 Free public parking, preferential
2 parking. Again, consider consumer awareness
3 because every one of these actions, you know, you
4 can promote, you can drive consumer awareness in
5 all of this. Infrastructure benefits. I think
6 we've talked enough about that. Fuel cell
7 vehicles. They're available in California.
8 3,000 Toyota Mirais sold as of January of this
9 year.

10 State's role, hydrogen, public
11 private partnerships. If you do develop -- and
12 Toyota's very involved. Honda is very involved
13 in this as well as the fuel providers. This one
14 I did want to touch on, and I think I'll end on
15 this one. Infrastructural location, and we've
16 talked about this, but it really is, there's a
17 lot to think about when you look at homes.

18 There are single family homes and I
19 have a level two charger at my house, so it makes
20 me more likely to buy an electric vehicle the
21 next time. You can incentivize that utilities
22 can incentivize that. They can provide it, but
23 then you have to consider MUDs.

24 You have to consider maybe DC fast
25 charge clusters for those where you could, you

1 know, a woman that I worked with, she lived where
2 she didn't have parking, where she couldn't put
3 in a charger, so she couldn't get an electric
4 vehicle despite pretty amazing deals, so work
5 place. Same thing. Public charging, highway
6 corridors clearly, but the last one is the one I
7 wanted to touch on.

8 High utilization urban transport
9 hubs. Lyft and Uber, General Motors has Maven.
10 They really want to get Bolts and General Motors
11 does have, they put Chevy Bolts in the Lyft
12 fleets, but the drivers, they have to have that
13 fast DC charging or they can't use them because a
14 lot of those drivers will go more than the range
15 of the vehicle. So the range on the vehicle is
16 238 miles.

17 They have a fair amount of vehicles
18 that are going 250, 300 miles in a day. You have
19 to have the DC fast charging. You can't wait in
20 a queue, which is what's happening in some
21 places, so I think that's one that hasn't been
22 covered yet. And again, in every one of these
23 consumer awareness and equity should be
24 considered, how can you correlate this in a
25 broader consumer awareness, how can you address

1 the equity issues as you're installing the
2 infrastructure as you're looking at it.

3 I know that's something we do in
4 California. And state fleet purchases. This is
5 our Drive Change Drive Electric. And I have a
6 bunch of slides that I'm not going to go through
7 on the utility and BPU engagement. That is so
8 critical to have the utilities involved and the
9 BPU involved. So with that, thank you and I'd be
10 happy to answer any questions.

11 (APPLAUSE)

12 MR. EGENTON: I would like to ask,
13 I'm a big bench marker by the way. When you look
14 at other states, if you had to pick like states
15 that really are all in, incentivize, they know
16 how to get the consumer all riled up and
17 interested, what states for example would you say
18 that we should take a look at to really put that
19 package on the table?

20 MR. DOUGLAS: Certainly California
21 because their approach has been comprehensive
22 across every sector from infrastructure to
23 incentives, incentives for light duty, for medium
24 and heavy duty. They also look at some things
25 that we don't mention are things like permitting.

1 It's really critical, permitting.

2 I'll give you an example. For fuel
3 cell vehicles, the Port Authority, if you have a
4 Toyota Marai, you can't drive over a Port
5 Authority bridge or tunnel because it's illegal,
6 so getting those issues addressed, you can drive
7 a natural gas vehicle, but not a hybrid vehicle.

8 MR. EGENTON: Interesting. That's a
9 good point. That would be challenging in our
10 tri-state area.

11 MR. DOUGLAS: Yeah. But they
12 address those building codes. They've also
13 adopted building codes that require, you know,
14 from new construction to putting the raceway for
15 conduit, putting the conduit so you can put in a
16 charger easily from the panel so they've been
17 really comprehensive and they've been consistent
18 year after year.

19 MR. EGENTON: The other common
20 denominator, Steve, I heard today too from a lot
21 of speakers is the homeowner, whether its the
22 homeowner association. We have, you are probably
23 well aware, 565 jurisdictions in New Jersey, so
24 everybody has their own way of handling things
25 and we have this thing called home rules, so

1 thank you. You hit the nail on the head.

2 There has to be integration and
3 coordination with the agencies, with local
4 government, with the buyers, the sellers, just
5 everybody. Just wanted to know if you wanted to
6 elaborate a little bit more on that.

7 MR. DOUGLAS: That's exactly right.
8 And I didn't mention that. The local government
9 is critically important in giving that out. We
10 did homeowners legislation. Even landlords.
11 You're required to allow someone to put in a
12 charging station even if you're renting.

13 So, yeah, there's been legislation,
14 homeowners association -- putting in charging
15 stations, so on the state level, it is, everybody
16 has to be -- it's a very new market and it's
17 in -- so it's important that everybody is
18 committed with that.

19 MR. EGENTON: Other questions for
20 Steve?

21 DR. OPIEKUN: When we talk about
22 infrastructure, we oftentimes talk in terms of
23 charging infrastructure and availability. The
24 question I had is, and California is probably a
25 good example for this. What about repair

1 infrastructure? Like with my conventional
2 vehicle, I think nothing of being able to go to
3 an independent repair facility as opposed to
4 going to a dealer.

5 When you have electric vehicles,
6 granted there's less maintenance, and perhaps
7 less problematic, but at some point you will have
8 some sort of electrical issue or other issue
9 specific to those types of vehicles. What is the
10 infrastructure, the training, incentives for the
11 local, smaller mechanics to be able to deal with
12 these issues? Because people can have range
13 anxiety, but people could also have repair
14 anxiety. Where do I go to get service.

15 MR. DOUGLAS: That's a fair
16 question. I think most of the time right now
17 because it's such an early market. All of the
18 repairs are done by the dealership and they have
19 a lot of training that they go through and that's
20 dealer funded training that the OEMs provide.
21 They get spare parts and things like that for
22 their technicians and, you know there's -- and
23 that's for electric vehicles that are out there
24 now.

25 The independent repair shops have

1 access to the same. The same information as far
2 as service information as the dealerships do and
3 so they can -- the issue is in repair shops are
4 probably not going to spend a lot of time at this
5 point when the market share is so tiny. It's
6 just not worth their investment.

7 They have access to the same
8 information, the same tools that the dealerships
9 do, but again, at this point, it's probably early
10 to say what there will be, but I'm confident that
11 the technicians who, independent of our dealer,
12 they're pretty brilliant today on gasoline
13 engines that are run by computers almost
14 exclusively, so I'm confident they can also
15 repair electric cars.

16 MR. WESTON: Based on gas prices,
17 you can work out pretty much how much it costs
18 you to drive a mile. Now, while I would expect
19 if I had an electric vehicle, I would plug it in
20 at work if there was a charging station
21 available. More often than not I'm going to be
22 plugging in at home. Have you done any sort of
23 price comparison between how much it would cost
24 to drive a mile on an electric mile versus a gas
25 vehicle?

1 MR. DOUGLAS: Absolutely. It's
2 funny you asked that. I just completed the
3 study. It was based in California, but, yeah, in
4 California, because when you bring an electric
5 vehicle into your house, that's all marginal
6 electricity so it's all on top. I don't know how
7 the electric rates are structured in New Jersey,
8 but in California they're tiered.

9 Your first block is this much. Your
10 next block is this much and so on and so forth.
11 In California, currently, the price like San
12 Diego Gas and Electric. It's the equivalent of
13 paying six dollars and 30 cents per gallon, so if
14 you look at a Chevy Bolt when you can drive on
15 electricity or you can drive on gas, it's your
16 choice.

17 If you're on SDG and E and you're on
18 a flat rate plan, you should be driving gas
19 because the electricity is almost twice as much.
20 Again, that's a California unique problem and
21 that's specific of San Diego, but I can happily
22 give the study so that you take a look at it.
23 And New Jersey can see if it applies to them, but
24 time of use rates are better.

25 DR. BIELORY: I think the basic

1 question is if I take 10 gallons to fill my gas
2 tank, how many kilowatts does it take to fill up
3 my car. That's the issue.

4 MR. DOUGLAS: A Chevy Bolt has a 60
5 kilowatt hour battery.

6 DR. BIELORY: So we should be able
7 to figure, but do you have a spreadsheet of what
8 the numbers are?

9 MR. DOUGLAS: Exactly.

10 DR. BIELORY: If you could send that
11 to us.

12 MR. DOUGLAS: Yeah, I definitely
13 have that.

14 MR. EGENTON: That would be great.
15 Thank you.

16 MR. DOUGLAS: Thank you so much.

17 (APPLAUSE)

18 MR. EGENTON: Our final phase before
19 we go into general comment period, we have some
20 of the state agencies that have joined us in a
21 moderated panel discussion. Don't get up and
22 leave. We just need two minutes. One agency
23 will be calling in on the phone, but in the
24 meantime, I know Andy Swords is here from DOT and
25 I believe Jason Flint is here. If you can come

1 up to the table here in the meantime. We're
2 going to set up.

3 (Discussion held off the record.)

4 MR. EGENTON: Hi, Christine.
5 Michael Egenton. I'm moderating the Clean Air
6 Council part of the discussion with the agencies.
7 Thanks for being able to join us via phone from
8 the Port Authority.

9 MS. WEYDIG: Sorry I couldn't get
10 there in person.

11 MR. EGENTON: No problem. You're
12 on-line, so you're recorded before a live studio
13 audience, as they say on TV. We have also with
14 us Steven Jenks from NJ Transit and we have
15 Andrew Swords from the New Jersey Department of
16 Transportation, and Jason Flint, New Jersey
17 Division of Consumer Affairs, the Office of
18 Weights and Measures.

19 Gentlemen, thank you for joining us
20 this afternoon. So to kick things off with some
21 generic questions that all of you, feel free to
22 let me know who wants to chime in first. Our
23 first question to you is what role can your
24 agency play to help speed the transition to
25 electric transportation. Who would like to kick

1 that off?

2 MR. JENKS: Steve Jenks from New
3 Jersey Transit. You're going to have to forgive
4 me. I was just actually upstairs in another
5 meeting with DEP getting beat up with a large
6 transit group project. But New Jersey Transit,
7 we're certainly in an interesting role. We have
8 the third largest public transportation
9 corporation in the U.S.

10 We supply, bus, rail, light rail,
11 para transit and we've been electrifying, our
12 service, ourselves and our predecessors, since
13 1910 when we started to electrify the train
14 service to and from New York City. Then again in
15 the 1980s, we included a large section of central
16 New Jersey and shore communities on the commuter
17 rail side.

18 And as I mentioned, our current
19 micro grid project, there is an electric vehicle
20 component to it on the non rev side to support
21 overall resilience goal. The idea is to leverage
22 electric vehicles to take advantage of other
23 resilient fuel that we're going to have on site
24 which will be electricity. So we're introducing
25 the idea of mobile resiliency, and so we

1 certainly see ourselves in a unique role.

2 We have demonstrated, we have
3 adopted electrification of our infrastructure.
4 Like I said, going back to 1910, and certainly
5 we're constantly looking to advance
6 electrification of rail and bus and our light
7 rail as well.

8 MR. EGENTON: So since, Steve, you
9 kicked things off, let me ask you this. Do you
10 foresee any installation in the future charging
11 stations at the train stations for the commuter
12 for future use?

13 MR. JENKS: So you're jumping
14 around. Let me step back and I'll say we are
15 installing at headquarters, six charging EV
16 stations in our parking garage. We are preparing
17 for plug in vehicles as part of our non rev
18 fleet, so we're looking to install them by
19 September. And then in terms of at train
20 stations, there are currently -- there are
21 several spaces that have available parking that
22 are in proximity to New Jersey rail stations.

23 We have the Nexus parking systems
24 that operate Hamilton and also Trenton. At
25 Hamilton, I think there are EV spaces level two

1 and I think one is level one. At Trenton they're
2 all level two. There's also parking spaces at
3 municipality privately owned decks in proximity
4 to Elizabeth. There are 10 at Rahway, there's
5 three spaces at Metuchen.

6 There's six spaces, and at Brunswick
7 there's actually 10 spaces. And also, Millburn,
8 two spaces. So in total there are 12 spaces at
9 New Jersey Transit owned lots that we leased out
10 and there are 37 charging spaces at lots owned by
11 private organizations or municipalities. We are
12 evaluating access points that will benefit from
13 EV charging stations at some of our own parking
14 lots.

15 But certainly, you have to balance
16 EV spaces within a parking facility, and also at
17 the same time, EV operating branch is increasing
18 as the technology progresses, so we do need to
19 consider, you know, will there be a need for
20 opportunity charging because that might diminish
21 as range starts to increase, so certainly we are
22 taking a look, but we also consuming the
23 technology as it evolves and we're constantly
24 evaluating.

25 MR. EGENTON: Thank you, Steve.

1 Christine, I know you're on the phone. Wanted to
2 ask you in 2009, the Port Authority announced a
3 10 year strategy to reduce emissions from Good's
4 movement. Was electrification part of that plan?
5 And if so, how did you engage your tenants to
6 terminal operators?

7 MS. WEYDIG: So our clean air
8 strategy, which was of course related more
9 specifically to our port facilities and
10 operations. The overall intention of that was of
11 course to improve regional air quality, but we're
12 not prescriptive at all about means and methods,
13 so while electric is shaping up to play a key
14 role, we didn't identify any specific
15 technologies and we're usually careful not to do
16 so, but what we have been doing, and again, we're
17 in a unique position because we don't operate
18 most of the terminals, so we do need to partner
19 with our operators.

20 And what we saw early on is that
21 there were definitely operational concerns that
22 related to electrification of equipment and those
23 concerns related to a variety of things including
24 duty cycle and charging infrastructure, battery
25 durability, and to a certain extent, equipment

1 efficiency.

2 But we have had some successful
3 demonstrations of electric air tractors as an
4 example that we worked with at the Red Hook
5 container terminal in New York, just partnering
6 with our operator there, so we do look to find
7 opportunities to help dispel some of the
8 operational concerns, but at this point, we don't
9 have any -- we're not aware of any specific plans
10 that the terminal operators have for any large
11 scale conversion of equipment.

12 MR. EGENTON: Okay. Andrew, to
13 switch over to DOT. As a number of electric
14 vehicles on the road rapidly increase, we will
15 need obviously to be strategic about the city
16 publically accessible charging stations.

17 So what opportunities does DOT see
18 to help address what we've talked about here
19 today about range anxiety by installing charging
20 stations on DOT controlled property such as rest
21 areas and park and rides?

22 MR. SWORDS: Okay. Well, first of
23 all, can everyone hear me okay? This is Andrew.
24 So of course, being DOT owned is critical because
25 then everything is much more easier to get done,

1 so we definitely see opportunities at our own
2 facilities, at our own rest areas. One of the
3 things that helps us to get that done is if we
4 can get a funding source. That's a key element
5 of that.

6 I know Peg and I have talked about
7 those issues in the past, always looking for
8 those opportunities, but really, I think the
9 timing for that works best when we're already
10 doing an upgrade of the rest areas, so we have
11 some of that in the works now, so we may be
12 looking for some opportunities to include EV
13 charging at some of those rest areas.

14 I guess the other aspect to this
15 would be, I'm sure there's been discussions with
16 the turnpike as well because they quite a few
17 more rest stops than we do, so they would -- and
18 I've seen some EV charging already installed at a
19 lot of their locations.

20 So yeah, I think we're interested.
21 We've had discussions in the past as part of the
22 VW settlement, so certainly, we have an
23 opportunity to ramp that up.

24 MR. EGENTON: Thank you. Jason, the
25 New Jersey Office of Weights and Measures ensures

1 that a gallon of gas pumped into a car is
2 actually a gallon of gas. Do we need to
3 implement measures to ensure a kilowatt of
4 electricity purchased at a charging station is
5 actually a kilowatt of electricity? And if so,
6 can you describe the steps that would have to be
7 taken to ensure consumer protection in this area.

8 MR. FLINT: Sure. In a series of
9 calling names, I thought I was going to get
10 passed over. So the Office of Weights and
11 Measures is tasked with testing and inspecting
12 all commercial, all devices weight and measuring
13 devices that are used in commercial trade within
14 the state of New Jersey.

15 So when it comes to electric vehicle
16 charging stations, we wouldn't be so concerned
17 for electric at homes or any place where they
18 might be free, but it would just basically be,
19 you know, anywhere you would pay to get X amount
20 of kilowatt hours out of a particular device.

21 You know, consumers already charge
22 by the kilowatt hour in residential and
23 commercial and industrial use through the
24 utilities, and the rates for those four major
25 utilities and if multiple suppliers are monitored

1 and already regulated by the BPU. And currently,
2 we have, there's about 230 sites, electrical
3 vehicle charging stations, that are open to the
4 public.

5 Of those which are commercial, I
6 have no idea at this point, but with the recent
7 legislation, especially with putting them on the
8 turnpike and the parkway, it would increase by,
9 just overnight, about 25 percent based on their
10 formula, and there's really no regulation in
11 place for us to be able to go out and make those
12 tests and the inspections.

13 As far as gasoline to electric
14 comparison, you can't see gas going into your
15 vehicle, and at the same time, you're not going
16 to be able to see the electricity as it goes into
17 your vehicle, so you want a vehicle to make sure
18 that the customer is comfortable and has the
19 confidence that what is going into the vehicle is
20 accurately measured and then they're charged and
21 delivered accurately.

22 But just as important actually is a
23 method of sale on a price comparison. We would
24 want to make sure that the post kilowatt hour or
25 time and price and the different charging levels,

1 whether it's a fast charge or an L2 or an L1 and
2 we're also concerned with additional services
3 such as parking fees based on a flat time to park
4 there or you can, what we see in other
5 jurisdictions where you can charge your car here,
6 but it's going to be X amount on top per minute
7 to also park in this particular location.

8 Currently, the state of New Jersey
9 has adopted what's called Handbook 44 through the
10 National Institute of Standards and Technology,
11 which is the book that we use to inspect and test
12 commercial devices. There is a tentative code in
13 there right now for testing, inspecting the
14 vehicle charging stations and there's equipment
15 available and we are currently vetting the
16 vendors to see which testing equipment that we
17 want to go with, so that's pretty much, you know,
18 where we -- those are the steps we need to take.

19 Once the tentative code becomes
20 formal within the handbook, since New Jersey has
21 already adopted that handbook, it will be fully
22 enforceable on the commercial side.

23 MR. EGENTON: Thank you. Christine,
24 you're still with us on the phone?

25 MS. WEYDIG: I am.

1 MR. EGENTON: I wanted to ask you
2 the next question sort of in the realm of our
3 airports which the Port Authority has authority
4 over. Are there any plans to install charging
5 stations at airport parking lots? And have you
6 seen any voluntary efforts by the airlines to
7 electrify ground support equipment? So you get a
8 twofer there.

9 MS. WEYDIG: So on both, we actually
10 have at this point, I would say, more than 20
11 electric vehicle charging stations at patron lots
12 across our three major airports, so that would be
13 LaGuardia, JFK and Newark, and I believe there
14 are more at Newark than the other two at this
15 point, and we did recently partner with JetBlue
16 at JFK to launch an electric vehicle ground
17 support equipment effort.

18 So it took a lot of coordination
19 insofar as the Port Authority really had more
20 jurisdiction over the charging infrastructure,
21 but JetBlue needed to commit to converting some
22 of their equipment to electric and we just had a
23 kick off meeting on that project this week, so
24 we're hoping that they're actually using that
25 equipment by some time late next year.

1 And at Newark, we are working with
2 one of our partner airlines who expressed a
3 similar interest, and I should be clear that at
4 JFK, one thing that was instrumental in getting
5 that electric vehicle ground support equipment
6 project fund was an FAA grant, a voluntary low
7 emission, airport low emission grant there and
8 Port Authority, as operator of the airport, needs
9 to be the grant recipient.

10 So it really does take a lot of
11 coordination and that's something that we're
12 looking into at Newark also with one of our
13 partner airlines.

14 MR. EGENTON: Okay. Very good.
15 Thank you. Steve, back to NJ Transit. I
16 wondered if you could elaborate on enabling
17 incorporation of electric buses into the engine
18 transit bus fleet.

19 MR. JENKS: Sure. We operate 16 bus
20 garages. Installation of electrical charging
21 equipment and service upgrades for handling
22 electricity and will certainly be an issue at
23 every single bus garage. Just to put it in
24 perspective, as I mentioned, we're installing six
25 level two charging stations and a parking deck.

1 It's an additional 48 KW. The current low, the
2 average low is 250 KW and 750 KW.

3 If you take it to the logical
4 extreme and you say, now we're going to convert
5 our entire fleet to EVs, assuming the technology
6 and performance meets our core emission, we're
7 going to essentially be tripling, quadrupling our
8 electric demand, so we're going to have to
9 upgrade our bus depots, so that's certainly a
10 challenge.

11 So in terms of docking these and
12 buses, we're constantly looking, but there's
13 going to be some significant capital and then a
14 bunch of operating costs as well and some of our
15 operational concerns as well on the capital side,
16 you have significant up front cost, but also
17 operations, we have to maintain them as well.

18 And a lot of the maintenance isn't
19 necessarily in the transmission and engine. It's
20 in seats, it's in brakes which is typically
21 common, which is what we typically see. So in
22 terms of operational savings, there might be some
23 operational savings, but again, it's not normally
24 in the engine or the transmission. It's more on
25 those components that you see across the board,

1 so that's operations concerns.

2 Now we're going to have to maintain
3 them and now training our technicians and staff.
4 We're going from 3,000 moving parts to 700 moving
5 parts, so it's a completely new engine, training,
6 education and what have you, so I mean, we're
7 constantly looking. We did put in for -- we are
8 exploring the expansion of our southern in
9 Camden.

10 We're looking to get between eight
11 to 10 buses, EVs down in Camden, so certainly
12 private projects are on the way for us and we're
13 exploring it, but full adoption is, one, if you
14 can get past the technical concerns and
15 performance concerns, significant capital and to
16 upgrade our facilities and then again property
17 costs.

18 MR. EGENTON: Just as a follow up to
19 that significant capital right now, we're in the
20 midst of a budgetary process here in Trenton.
21 The Governor announced more funding for Transit
22 and certainly the needs are there. Are you all
23 engaged at Transit in those discussions with the
24 governor's office and other policy leaders, if
25 you will, as to what the needs are to meet the

1 goals, you know, for what we're discussing here
2 today?

3 MR. JENKS: I mean, yeah, sure, of
4 course we are. Our core mission is to provide
5 safe and reliable transportation, so any time we
6 adopt new technology into our fleet and
7 incorporate it, we have to make sure that
8 satisfies our core mission.

9 So yes, we're actively talking and
10 we're exploring what kind of options and the
11 technology and performance of these EVs. We have
12 to make sure it satisfies our core mission, so,
13 yeah, we will be looking to pilot a few programs,
14 like I mentioned, down in one of our southern
15 garages in Camden, but yeah, we actively, we know
16 EVs are coming and it's certainly something that
17 we're willing to explore.

18 MR. EGENTON: Andrew, over to DOT
19 again. Signs indicating that a charging station
20 is nearby would help alleviate range anxiety and
21 encourage consumers to buy an EV. What issues
22 would need to be addressed to allow DOT to deploy
23 signs along highways and at exits?

24 MR. SWORDS: Let me first start by
25 saying that recently -- we had -- the way this

1 federal transportation legislation called the
2 fast act, and as part of that, federal highway
3 provided an opportunity for states to put in for
4 alternate fuel corridors. And worked -- our
5 folks worked with NJ DEP on that effort, so we
6 were a little puzzled at the beginning because
7 there didn't seem to be any funding involved but
8 we thought, well, it's a good idea anyway.

9 We should still do it and who knows,
10 maybe there will be funding in the future. So we
11 worked on it and for the first round of funding,
12 the first round of nomination, we put in for
13 interstate 95 and I80. The second round we just
14 completed last November, and I think Andrea
15 pointed out we got some happy news on that, so
16 what we had to do was put in, as part of this,
17 indicate there was a lot of work done by DEP as
18 to near the corridors, how many fueling stations,
19 how many EV charging stations are available.

20 And based on a lot of that data, we
21 looked at it and so we divided the corridors into
22 either signage ready or signage pending. So
23 signage ready means there's a greater density of
24 charging stations. So for the second round, we
25 put in for signage ready, I78 between Warren

1 Township and Newark. I287 between Edison and
2 Bridgewater. I295 between the Delaware Memorial
3 Bridge and Route 1 in Mercer County.

4 And then for signage pending, we put
5 in I78 for Warren Township to the Pennsylvania
6 border and then on I287 from Bridgewater to the
7 New York state line, so we have those nominations
8 in place, so we would expect some time there may
9 be an opportunity in the future to possibly put
10 up some signs. With regard to that, in terms of
11 that activity, I talked a little bit internally
12 with people who know these things much better
13 than me.

14 And basically, as everyone, I'm sure
15 is familiar with, when you're out on the road you
16 see those blue signs that say gas, food and
17 lodging. Well, apparently they're called logo
18 signs because you see the logos for the companies
19 on the signs. So that's really probably the best
20 way for us to incorporate that kind of
21 information.

22 The way that that process works, it
23 tends to work better if we're talking about a
24 private entity. For example, one of these
25 charging stations where you have to pay for the

1 electricity, but the way our process works,
2 essentially is whoever the entity is would reach
3 out to the department and say they want to be
4 included on a blue logo sign, maybe we could call
5 them gas, gas and electric, gas and EV or maybe a
6 separate EV category.

7 And then we put that entity in touch
8 with an outside vendor who then is contracted by
9 the department and just basically there's an
10 application process and a fee, but it's pretty
11 straight forward, so that would be a way, without
12 too much difficulty to start incorporating that.
13 I guess, one thing that's a little bit, you'd
14 have to sort of look at is how many of these are
15 we talking about.

16 It's probably not an inordinate
17 number, but one sort of side issue that sometimes
18 comes up that it's kind of a nice problem to have
19 in some ways, but from our traffic engineering
20 standpoint is they have an issue called sign plug
21 where the human brain can only process so much
22 information while traveling at whatever speed
23 that is.

24 Hopefully at a ramp not going 55, 60
25 miles an hour, but still, you have to kind of

1 look at all this information and figure out
2 what's what, so there is a little issue of that
3 that has to be managed, but beyond that, I think
4 it's not too bad.

5 MR. EGENTON: Almost that picture
6 you would see, I've seen in the past where there
7 is so many signs, the driver doesn't know what to
8 do, saying go this way, go that way, do that.
9 That's a good point.

10 MR. SWORDS: And also you probably
11 make good material for power point presentations
12 when you see arrows pointing in every direction.
13 So I think we have opportunities there, and
14 because I think there's a lot of other entities
15 out there, whether they're private, public and
16 that would actually be a question for me as to,
17 do we have a sense as to the existing charging
18 stations out there. How many of them are
19 privately operated, how many are publically. Do
20 we know that?

21 MR. EGENTON: Peg, I guess something
22 we should try to find out if we could. Public
23 private partnership. It would be good to know
24 that, private entities are out there. Jason,
25 just to ask you, do you see any additional

1 opportunities or obstacles regarding this
2 dialogue we're having today, from your
3 perspective, that you want to share with us?

4 MR. FLINT: Not really, no.

5 MR. EGENTON: You've covered the
6 gamut?

7 MR. FLINT: Yeah. We've covered the
8 gamut.

9 MR. EGENTON: While you have the
10 microphone. I want to ask all of you so we can
11 all take turns. So what opportunities do you see
12 for transferring to your agencies -- well, I
13 guess you really manage -- this is probably the
14 other agencies. Let me ask you this. How do you
15 coordinate what we discussed here with the other
16 agencies? Is there a continuing dialogue that
17 happens between you and Steve and Andrew and DEP
18 and BPU, or is it brand new for you and now we're
19 pulling into this?

20 MR. FLINT: Being that the Office of
21 Weights and Measures is the best kept government
22 secret, so, yeah, we have not really worked with
23 the same ability of EV or any alternative fueling
24 such as like we've done some work with CNG.

25 We've been following hydrogen

1 because there was a permanent process up in North
2 Jersey at Lodi for its fuel station, so we're
3 keeping on top of it and we're trying to, you
4 know, reach out as best we can to work with you
5 for this.

6 MR. EGENTON: How about you, Steve?
7 Like NJ Transit, I'm sure you're in communication
8 with your folks in DOT and DEP and BPU. Trying
9 to get everybody under the same umbrella, if you
10 will.

11 MR. JENKS: Yeah, sure. We have a
12 history of working with our sister agencies, BPU,
13 DEP. Our transit project, we work with DOP, DEP,
14 BPU, Office of Homeland Security. You name it,
15 we worked, and we continue to have dialogue. I
16 just spoke with Mike on Monday.

17 Mike Hornsby is calling me up every
18 week telling me we need to be installing charging
19 stations at Princeton Junction. And I talk with
20 Peg frequently on some of the VW settlement
21 money, so yeah, we have a history.

22 MR. EGENTON: How about you,
23 Christine, on the phone, the Port Authority, are
24 you kumbayaing with the other agencies? You
25 mentioned the turnpike authority. What kind of

1 collaborative discussion and efforts do you have
2 going on there?

3 MS. WEYDIG: Well, I guess to a
4 certain extent on the New York side, we do have a
5 partnership with the New York Power Authority who
6 is one of our partners on the JetBlue electric
7 vehicles, so we're also partnering -- well, we're
8 coordinating in New York with the metropolitan
9 transportation authority, and this is something
10 that we're interested and looking into
11 essentially on the Newark side also.

12 But insofar as we're converting some
13 of our airport buses to electric as we're looking
14 to build out that infrastructure, we're looking
15 for synergies with other municipal transit buses,
16 so that we can maximize that investment.

17 MR. EGENTON: Great. Thank you. So
18 in that line, gentlemen, talk about the
19 conversion. You know, what opportunities are
20 there that you see down in the future for the
21 irrespective agencies to convert the light duty
22 and heavy duty fleet from fossil fuel to
23 electric?

24 MR. FLINT: At the Office of Weights
25 and Measures we have a varied fleet. We have

1 small sedans to trucks that are over
2 80,000 pounds with cranes and trucks that have a
3 25 hundred gallon capacity that can pump 500
4 gallons a minute, so we really have to work,
5 especially on the more heavy duty end of vehicle
6 fleet with some technical experts to make sure
7 they would be viable for means.

8 There has been some success in
9 California using things like CNG, other
10 alternative fuels for these types of vehicles in
11 their weights and measures department, so we
12 would have to really kind of button down and take
13 a look and funding. That would be helpful also.

14 MR. EGENTON: Funding seems to be a
15 common topic. Andrew, from your perspective?

16 MR. SWORDS: Sure. So as you might
17 expect, we have a pretty large fleet at New
18 Jersey DOT, and there's always opportunities
19 because the fleet has to turn over. I remember
20 when I first, actually from when I first started
21 with the department in the late 80s until close
22 to 2000 we still had the old K-cars, so if you
23 remember those from the 80s.

24 So luckily we've moved beyond that
25 era and we've finally gotten rid of the old Chevy

1 Cavaliers, even though -- so I think there are
2 opportunities. And like Jason is saying, in
3 terms of the bigger vehicles, my sense is that
4 probably looking more at CNG, but for, I would
5 say there are opportunities.

6 But again, I hate to repeat the same
7 line, but it does tie into funding because when
8 we're looking at the funding for the fleets,
9 we're basically talking general fund. This is
10 not a lot of opportunity there, so we could
11 probably get a little more creative in terms of
12 other sources of funding.

13 MR. EGENTON: To that point, one of
14 my colleagues on the council know that my
15 organization, the New Jersey Chamber of Commerce,
16 was very active for many years and finally we got
17 it done replenishing the Transportation Trust
18 Fund which is now constitutionally protected too.

19 So with that, is there any ability
20 for you folks to -- we did get eight year
21 funding. You always hear about the trials and
22 tribulations of Trenton, but we actually did get
23 something done and we passed legislation to
24 protect those dollars. I didn't know if that's
25 something that you all creatively tap into

1 because it's supposed to go to roads, bridges and
2 transit.

3 MR. SWORDS: Correct. And that's a
4 good point. Why would I possibly be complaining
5 of funding when we just got this big gas tax
6 increase. Well, one of the things to point out
7 is that all of the increase in funding with the
8 DTF is really statutory. It's really tied into
9 local eight programs which is a great thing, so
10 we have a substantial increase in municipal aid
11 and county aid, really not a lot extra in terms
12 of other things.

13 MR. EGENTON: And the bonds, too?

14 MR. SWORDS: Yeah. And the other
15 opportunity, I think that we're really looking
16 at, we're really I think seeing as additional
17 opportunity is there is now the New Jersey
18 Transportation Infrastructure Bank, so it's
19 spanned from the NJ Environmental Trust, which
20 I'm sure many of you are aware of.

21 We've had David Zimmer has been
22 working very closely with our department in
23 getting that up and running, so that's another
24 area that's an important opportunity, but, yeah,
25 I think we need to try to be creative. I think,

1 to me, clearly, we are in a world now where
2 electrifying the transportation sector makes an
3 enormous amount of sense.

4 We have to start from where we are
5 and that's kind of challenging because a lot of
6 us are old and set in our ways, but that doesn't
7 mean we can't learn new opportunities and keep
8 trying, so I think there's opportunity to do
9 that.

10 MR. EGENTON: There is legislation
11 actually that's starting to move on public
12 private partnerships and a lot of people talking
13 about PE3s and the ability to utilize the private
14 sector together with government to make these
15 things happen. Do you see that as another course
16 of action that you all can, you know, help get a
17 lot of these things and initiatives done?

18 MR. SWORDS: Sure. We can look into
19 it. We haven't had a whole lot of experience
20 with that, but that's not to say there's another
21 avenue that -- sure.

22 MR. EGENTON: So at this point, I
23 think I went through some of the questions that I
24 had. I'd like to open it up again to the Clean
25 Air Council members.

1 MR. WESTON: Thank you. I'm the
2 county representative and we just came very, very
3 close to touching on a point that I wanted to
4 make or at least ask the DOT. So we talked about
5 the Transportation Trust Fund, we talked about
6 the gas tax that funds our local increases, our
7 transit programs, pays off some of our
8 outstanding debt. Is there a plan as ZEVs, as
9 electric vehicles in particular, continue to
10 proliferate the market.

11 Is there a plan to make up that lost
12 revenue? And in the interim, how are we going to
13 address the inequity that exists for the 6,000
14 vehicles that are out right now statewide that
15 are using our roads and using our bridges and are
16 not paying one penny into maintaining those?

17 MR. SWORDS: I appreciate the
18 opportunity. So to your latter point, my short
19 answer is I don't know. I think that's a key
20 question and, as we know, this is only going to
21 become more of an issue. This has been on the
22 radar for a while, not only at New Jersey DOT,
23 but around the country.

24 There have been numerous discussions
25 about a BMT fee to basically charge by the mile

1 as opposed to the gas tax because there is a
2 widespread recognition that the buying power of
3 the gas tax is only going to continue to decline,
4 so there is definitely an understanding of that.
5 Having said that, getting another mechanism in
6 place is challenging.

7 I know there's been one group that
8 our agency is part of is the I95 Corridor
9 Coalition which is all state DOTs from Maine to
10 Florida, and that group has investigated
11 opportunities for a DOT fee. I believe in the,
12 not the fast act, but the previous federal
13 legislation, there was some attempt to introduce
14 some BMP fee discussion. There was some attempt
15 to include that. It really didn't get traction
16 in terms of really full implementation. There's
17 been a pilot program on that in Oregon, so I'd
18 love to see where they are.

19 But you're right, this is an ongoing
20 issue and we need to look at other opportunities
21 and whether its BMP fee is one thing. There are
22 other ways in which you we can get some funding.
23 There are things like registration fees, but
24 that's tough because then you're only getting
25 people once a year, so I think that's a

1 continuing issue.

2 And I believe, the other thing I
3 would say though is some of you may be, I'm sure
4 some of the people in the audience are already
5 part of this group. There is an organization
6 called the Transportation Pilot Initiative, which
7 is basically energy, environmental and
8 transportation agencies from basically all of New
9 England plus New York, New Jersey, down to and
10 including District of Columbia.

11 And that's one thing they've been
12 looking at on a policy basis is starting to try
13 to figure out how can we price some of these
14 price transportation -- how can we do some of
15 these things to try to cover that gap, so it's
16 all being discussed kind of on a policy level,
17 but nothing is really ready for prime time yet.

18 MR. EGENTON: Thank you. Other
19 questions from the council?

20 DR. BIELORY: The question is you
21 actually rent out spots at the transit. Is there
22 an increase demand for those spots? And the
23 question is, one to two percent of the cars out
24 there are electric vehicles, what's the
25 allocation of spots? Meaning, are you taking

1 more than those two percent?

2 MR. JENKS: We work closely with the
3 private parking that's right next to stations and
4 also with Nexus and we've been speaking with them
5 about how their EEs and how that's worked out,
6 but we're still in the planning stages. We
7 haven't funded or we haven't put any charging
8 stations on New Jersey Transit owned property
9 that we maintain.

10 That's some of the things that we're
11 looking at in terms of the cost, maintenance, how
12 do we manage them, do we charge. So that's part
13 of the planning that's going on right now.

14 MR. EGENTON: Other questions? Sara
15 Bluhm, our chair.

16 MS. BLUHM: Yes, also looking kind
17 of forward thinking, and I brought up the example
18 earlier of my daughter and Daniel Tiger. Are we
19 starting to think about this in the future in
20 terms of autonomous vehicles and also adding to
21 them as being electric and taking that into
22 account as we're planning either our roads or our
23 transit?

24 MR. SWORDS: Supposedly, I should be
25 smart on this because I just came back from a day

1 and-a-half autonomous vehicle conference in
2 Pittsburgh. So basically, in New Jersey right
3 now we're in learning mode, but our commissioner
4 is very, very interested in both connected and
5 autonomous vehicles so it was very interesting to
6 go out to Pittsburgh and hear what's happening
7 there.

8 Penn Dot in Pennsylvania is one of
9 the states that's ahead of the game. There's a
10 lot going there on there. What we started to do
11 in our department is we have an internal working
12 group that has been discussing, and when I say
13 connected on autonomous vehicles, so the
14 connected side is looking at our infrastructure
15 and how our infrastructure can communicate with
16 vehicles and how vehicles can communicate with
17 each other, so that's one aspect.

18 So for example, if you're out on the
19 highway and you see vertical message signs that
20 are out there, there is a capability now to be
21 able to have that information just put directly
22 into your dashboard so that's one thing. But in
23 addition to that, there's a lot of interest of
24 course in autonomous vehicles.

25 There's also the I95 Corridor

1 Coalition. It has a connected and autonomous
2 vehicles working group. We're part of that as
3 well, so there's a temptation to really focus on
4 the autonomous side because it's a lot more
5 interesting. It's sort of futuristic, but it's
6 going to be quite a while before we're there, but
7 it's definitely something that we wanted to get
8 more active in.

9 I think we have opportunities to
10 start with our internal working group and
11 building that outwards and getting other folks
12 involved, making it more of an inner agency
13 discussion and getting the private sector
14 involved too, so I think there's a lot of
15 opportunity there and we're very interested in
16 that. There's different aspects though. We have
17 our traffic operations area.

18 Just looking at all the technology
19 side of it. From a planning perspective, there's
20 a lot of interesting debate right now because you
21 start looking at an autonomous vehicle future,
22 you start to see, well, what does that mean for
23 our communities, where people live, how we use
24 our land, a whole variety of things like that.
25 So I think there's a lot of thought about as we

1 start moving in this direction, it becomes really
2 critical to look at the context.

3 So in an urban context, maybe we
4 don't want to have all these autonomous pods
5 driving around empty, we would probably want to
6 have more of a shared mobility environment and
7 different environment in the suburbs and in the
8 rural areas, so it's really exciting. Our next
9 long range plan, which needs to happen really
10 soon is, we'll have to incorporate all of this
11 thinking as well, so I hope that helped.

12 MR. EGENTON: I'm going to probably
13 take a pause here and I want to thank all of you
14 for being here and engaging us from the different
15 agencies. Christine, you on the phone, Steve,
16 Andy, Jason, appreciate the dialogue today and we
17 encourage and ask that you continue to keep that
18 dialogue with Peg and the rest of DEP open as we
19 review the suggestions and recommendations today.

20 And Mike from BPU and everybody and
21 do that whole kumbaya. Give us feedback. If we
22 have questions, hopefully we can reach out to you
23 through Peg and the rest of the DEP staff, so
24 thank you very much for being with us here today.
25 We appreciate it.

1 (APPLAUSE)

2 MR. EGENTON: We are at the point of
3 the hearing today where we open it up for public
4 testimony and I would just please respectfully
5 reiterate that, you know, if you're providing
6 comments to us, we do have a five minute limit
7 during the public testimony segment. With that,
8 is Kevin Miller here from Charge Point?

9 MR. MILLER: So my name is Kevin
10 Miller. I'm the Director of Public Policy for
11 Charge Point. Charge point is the leading
12 network electric vehicle charging stations in the
13 world with solutions in all categories of EV
14 charging from home, in public, in work places,
15 out of town and fast charging locations and more.

16 We've got more than 47,000 charging
17 spots across our network and over 670 of those
18 are in New Jersey, and the ones that I just
19 mentioned in New Jersey are both public and
20 privately accessible. Those additions were all
21 made by the individual who's hosting our charging
22 station.

23 Drivers on the Charge Point network
24 have completed more than 33 million charging
25 sessions, standing upwards of 33 million charging

1 sessions which equates to 33 million gallons of
2 gasoline and over 803 million gas free miles.
3 We're a Silicon Valley start up, but all of our
4 New Jersey stations are New Jersey owned and
5 operated.

6 We don't own and operate the
7 equipment ourselves. We design it, we
8 manufacture it and sell it to independent, what
9 we call, site hosts. And those site hosts make
10 all business decisions or the operational
11 decisions about how to use them. We also provide
12 the smart networking tools that lets folks manage
13 either the energy in real time and do a whole
14 host of advanced features.

15 Transportational electrification is
16 really interesting insofar it is a paradigm shift
17 where people are refueling their vehicles when
18 they arrive at their destination as opposed to on
19 their way to it. It's not a pit stop reviewing
20 paradigm. Over 60 percent of charging takes
21 place at home and 30 percent of charging takes
22 place at work.

23 There is a very small sliver that
24 takes place in public, and that's a very
25 important sliver, but you need to have the right

1 charging solutions to meet all those different
2 types of scenarios. So you have level two
3 charging stations which is seven kilowatts to
4 give you a two to five hour full charge which are
5 really well suited for those longer times where
6 over 90 percent of charge is taking place.

7 To our direct current fast chargers,
8 which at about 500 kilowatts give you a charge in
9 10 minutes or less, but that's also flickering on
10 and off the power at a Shoprite, so there are
11 serious challenges that come with all these
12 different technologies, and they have different
13 applications for residential, public and private
14 fleets as well as just a generally publically
15 available stations.

16 This new load, if managed well, can
17 provide value for the grid and having smart
18 network capabilities make sure that you have the
19 ability to increase equity and access both to the
20 benefits that come from EV charging as well as to
21 the equipment itself.

22 One of the few things I'll leave you
23 with is there is a whole host of both really
24 exciting and really boring sounding policy
25 options, and I want to encourage you to dive into

1 the really boring sounding options because those
2 are the ones that really drive growth in EV
3 charging. I used to wear the hat of CFO for
4 Energy and Environmental Agency Massachusetts,
5 and I know it's really appealing to pour a lot of
6 money into projects and hope that it works.

7 But sometimes things like making
8 sure our building codes are right from the get-go
9 so that all the underlying wiring that you need
10 to eventually hook up a charging station, getting
11 that right helps to avoid hundreds and hundreds
12 of millions of dollars of potential costs if you
13 redig something that you've already poured
14 concrete over. There is a mess of things that
15 are really valuable to help drive adaption.

16 From looking at vehicle incentives,
17 work place charging and decreasing barriers for
18 residential charging especially in urban areas.
19 When we think about some of the opportunities
20 that are out there, what's really critical is to
21 think about how are we setting our goals and how
22 are we making them flexible.

23 Those are rapidly changing, so the
24 charging solutions that we're using right now may
25 be different in six months and will definitely be

1 different in five years so we don't want to lock
2 ourselves in. We need to allow some flexibility.
3 We've also talked a lot about the important
4 critical role that utilities already play in
5 supplying the electricity, and what we need to do
6 is make sure we're having a cool, calm and
7 collected conversation about what is the
8 potential role if we're talking about expanding
9 that traditional role.

10 Questions remain about what kind of
11 programs could work, and so we're looking forward
12 to having a robust dialogue and be happy to
13 provide some additional comments to this regard.
14 One last piece on the consumer protection side,
15 if we're talking about looking at sustainable
16 funding sources and making sure what you're being
17 charged for is what you're getting in the vehicle
18 for a charge, there is a lot of really great
19 opportunities to look at what some other states
20 have done to ensure that as well as making sure
21 you have open access across the board for
22 publically available funding charging stations,
23 so thank you for your attention and for your
24 focus on these critical issues.

25 MR. EGENTON: Thank you, Kevin.

1 Clean Air Council, members, any questions for
2 Kevin?

3 MS. CONNOLLY: The DC chargers, is
4 the technology advancing where it doesn't deplete
5 the efficiency of the battery?

6 MR. MILLER: So battery technology
7 is constantly evolving and capacity is
8 increasing. The extent to which you cycle that
9 charge will have an impact on the battery.
10 Having longer term charging is both better in
11 terms of maintaining that capability as well as
12 being better for the grid.

13 Most of the time, we're not driving
14 in our cars. We're not driving in our cars right
15 now. Your car could be charging, so making sure
16 we have the ability to let people charge when
17 we're already there, it's critical, but there can
18 be impacts, but as technology improves, those
19 impacts will be mitigated.

20 MS. BLUHM: Since you raised
21 building codes, are there any that you see as an
22 issue in New Jersey?

23 MR. MILLER: I think making sure you
24 have a consistent set of regulations is always
25 available and you're not going city by city and

1 seeing what are the different impacts here versus
2 there, having clear requirements for what you do
3 with new built inspection is really valuable and
4 having a statewide criteria there for what
5 percentage of parking spots in new buildings,
6 both residential and commercial, are EV ready.

7 And by that, I don't mean everybody
8 has an EV charger plugged into every parking
9 spot. You want to make sure that you have
10 sufficient electrical capacity and all of the
11 wiring and conduit in place before the concrete
12 is poured to allow for the future purchase of
13 stations. And that drives down costs
14 significantly. And I think a presenter mentioned
15 that.

16 So that's one key piece and thinking
17 what can we do with our existing stock because
18 we're not going to tear everything down and build
19 new again. There are tools that you can look at
20 both for, I think some zoning issues came up, but
21 even in the code, what kind of retrofit options
22 are we looking at, when are we going to be
23 triggering significant electrical updates anyway
24 where you could piggy back off of existing
25 capital structures.

1 That's really key. And then also
2 thinking about what are the limits and scenarios
3 when if someone had dedicated parking already,
4 and they are willing to take on all the costs of
5 installation and operation, how should we
6 minimize the barriers to make it possible for
7 them to decide to install themselves, so some
8 regulatory hurdles in the near term, but in the
9 long term, that's the investment and the very
10 boring stuff of building codes where you really
11 unlock a whole lot of value and avoid costs.

12 MS. BLUHM: Do you have a favorite
13 state that you operate in?

14 MR. MILLER: All of the states are
15 my favorite state.

16 MR. EGENTON: Thank you, Kevin.
17 Before I call up the next public speaker, I want
18 to reemphasize that our written comment period
19 will be open until the end of the month, April
20 30th. And as I said, you can submit it through
21 the Clean Air Council website, so for anybody
22 that didn't get an opportunity today or wanted to
23 submit more detailed comments, we're open. We're
24 transparent.

25 So wanted to check. I was going to

1 do a shout out. We did have Chuck Feinberg.
2 Chuck, you're not here, right? Don't see you
3 here. We'll move on. Ashley Lynn with Charge
4 EBC. I'm going to do a bad job pronouncing your
5 last name. Can you pronounce it?

6 MS. CHRZASZCZ: Hello, everyone. My
7 name is Ashley Chrzaszcz. I was an intern here
8 approximately two years ago at the Office of
9 Economic Analysis and the Division of Air Quality
10 when it used to be called that. I shuffled
11 around in all the offices and got to know a lot
12 of wonderful individuals here. Many of you on
13 the Clean Air Council who I see as familiar faces
14 so hello again.

15 Today I represent Charge EVC and the
16 primary goal of Charge EVC to be the
17 understanding entity which says there's a lot of
18 individuals, a lot of stakeholders which walk a
19 very narrow path, and we all agree that
20 electrification of transportation is one of the
21 most impactful things that New Jersey can do in
22 order to decrease greenhouse gas emissions,
23 provide benefits for rate payers.

24 And more importantly, provide a
25 system of connected infrastructure so that people

1 are able to move about. There's some individuals
2 who have spoken today about environmental justice
3 issues which we wholeheartedly support. We
4 recognize that making sure people who are in
5 these urban centers are not impacted by emissions
6 and by NOx and SOx and DOCs anymore.

7 It's a very important thing for us,
8 so more importantly than that, we have recognized
9 that there are three incredibly impactful things
10 that can be done in order to support programs and
11 policies for the electrification of
12 transportation. These three actually have now
13 taken bills that are currently in the Senate and
14 the Assembly.

15 As of right now, the very first one
16 is goals and authorization, equivalent of yes, we
17 can do this, this is how we're going to. 330,000
18 cars with a plug by 2025 essentially making ZEV
19 compliant, which a lot of people spoke about
20 today. The second thing is public charging
21 infrastructure. Having essential infrastructure
22 which allows people to travel no more than 25
23 miles to get from location to location.

24 It includes highway charging on
25 things like I80 and I95, which people have

1 mentioned, as well as community chargers so that
2 people who do live in multi unit dwellings have
3 access to the necessary charging infrastructure.

4 The third bill is rebates which, as
5 multiple people have said cash on the hood, point
6 of sale rebates are one of the most impact things
7 for consumers, whether it is somebody in the
8 municipalities, whether you are a personal
9 consumer that wants a car, be that the fancy
10 shiny Tesla or that Chrysler Pacifica that I
11 personally really love because who doesn't like
12 all that cargo space.

13 At the end of the day though, these
14 three things were put into our road map, and we
15 recognize that they're impactful. We want to
16 step further than the road map which was released
17 in September of 2017 and Charge EVC hired a study
18 with New Jersey as a core focus and in a ground
19 up model of what New Jersey is, where we've been
20 and where we need to go.

21 This model looked at three adoption
22 scenarios in which we were ZEV compliant, parody
23 with other states and a leader in all of the
24 United States. That study will be represented as
25 part of my written comment which I'll be

1 submitting by the 30th I promise, probably by
2 tonight once I get home. But in the study, I'm
3 going to hit you with a few sound bites of sorts
4 that you understand some of the things that have
5 fallen out of this study.

6 For instance, mile to mile in the
7 state of New Jersey, every electrically fueled
8 mile is 69 to 79 percent less carbon dioxide
9 compared to an internal combustion engine, so
10 roughly 70 percent cleaner mile to mile than an
11 internal combustion engine. Somebody before
12 asked about the fueling of electric vehicles.
13 Well, I can speak about New Jersey, if you drive
14 a mile in an electric vehicle it will cost you,
15 approximately, three cents.

16 If you drive a mile in an internal
17 combustion vehicle, it's going to cost you 12
18 cents. If you actually want to do the math
19 yourself, I've created a calculator which is
20 Charge EVC Dot Org. If you go under useful
21 resources for EV drivers, you'll see a lovely
22 calculator that I've crafted by hand, and that
23 basically allows you to drop in what you're
24 paying for electricity, what you're currently
25 getting for your gas mileage in your current

1 vehicle and shows you for fueling at least it is
2 in fact very cheap comparatively speaking.

3 Insofar as health impacts, as of
4 right now, we realize that minor restrictive data
5 are estimated to be reduced by 7,087 days each
6 year in 2050, while lost work days are estimated
7 to be reduced by 1,181. Both of which represent
8 a reduction of about 32 percent, so if we start
9 to get to this level of leadership for New
10 Jersey, which I know we all can do considering I
11 have sat next to people who told me how ozone
12 back to be in the 90s and now we see what it is
13 today.

14 If we can do that same thing for EV,
15 and get on the same leadership and get back to
16 where we need to go, EVs can be an effective
17 level which would translate to massive health
18 benefits for people, reduction of asthma in
19 affected groups like children, people that have
20 COPD and other people who are elderly.

21 At the end of the day, Charge EVC
22 helps to function as a trusted resource for
23 anybody that has questions, and I invite every
24 single person to personally email me if you have
25 any questions about anything that I've said today

1 and I'd be happy to give you a road map of our
2 study. Thank you so much.

3 (APPLAUSE)

4 MR. EGENTON: Do we have any
5 questions for Ashley?

6 DR. BIELORY: Look forward to her
7 written report.

8 MR. EGENTON: Norah Langweiler, New
9 Jersey Environmental Council.

10 MS. LANGWEILER: Good afternoon.
11 Thank you for allowing me to speak. I'm Norah
12 Langweiler. I am the campaign organizer for New
13 Jersey Renew. We work closely with Charge EVC,
14 so I may be echoing a few of your things, and I
15 work at the New Jersey Work Environment Council.

16 New Jersey Renew is a coalition of
17 60 organizations and we're committed to state
18 based action on climate. We were founded in
19 January of 2017 in recognition of the urgency of
20 the climate crisis and partially in response to a
21 lack of leadership at the federal level.

22 We're a broad coalition. We include
23 labor, faith, environment, health community
24 organizations, and we're all pushing for
25 increased investment in clean energy

1 infrastructure, reduce greenhouse gas emissions
2 and good family sustaining jobs. Thus far, we've
3 held events in Camden, Montclair, New Brunswick,
4 Little Falls, Jersey City, Trenton and we're
5 planning additional events this year.

6 More than a thousand people have
7 signed our petition demanding state action. As
8 we discussed, today nearly 50 percent of
9 greenhouse emissions in New Jersey come from the
10 transportation sector. Mostly light duty
11 automobiles like the standard family car, but
12 also medium and heavy duty vehicles like diesel
13 trucks for industrial or commercial use and buses
14 for public transportation.

15 Particulate matter from the
16 transportation sector contributes to poor air
17 quality and negatively impacts residents health.
18 According to the American Lung Association, 2017
19 State of the Air Report, 11 counties in New
20 Jersey received a failing grade on air quality.

21 New Jersey residents, particularly
22 that live in urban areas are subject to high
23 concentrations of greenhouse gas emissions and
24 air pollution resulting in higher rates of asthma
25 and other respiratory illnesses. In New Jersey,

1 one in 13 people have asthma, so we have to
2 recognize that we have a problem for both the
3 climate and the health perspective.

4 I'm here today to ask that you bring
5 forward more good policy to support the
6 electrification of public transportation. Every
7 mile traveled that is converted to electric is 70
8 percent cleaner than a gas powered mile. And an
9 increase in the number of electric vehicles on
10 the road is a crucial step to meeting the state's
11 emissions inspection.

12 Buses, particularly older ones,
13 drive at low speeds in highly populated areas all
14 day pushing diesel emissions and particulate
15 matter directly into communities. Transitioning
16 our public fleets, buses and cars show that the
17 state will lead the way on the transition to the
18 clean energy economy and converting buses to
19 electric can help meet the emissions reduction
20 goals and improve air quality.

21 New Jersey Transit must invest in
22 electric buses to improve our community's health
23 and ensure a clean energy future. Thank you.

24 (APPLAUSE)

25 MR. EGENTON: Do we have Emily Wier

1 with Green Lots.

2 MS. WIER: Good afternoon,
3 everybody. Thank you so much to the Clean Air
4 Council and to our chairs for facilitating this
5 meeting. This has been really enlightening. I
6 appreciate everybody's presentations and
7 participation. I work for Green Lots. We're a
8 leading provider of electric vehicle software and
9 services.

10 We support a significant percentage
11 of the DC fast charging deployments across North
12 America including some throughout the state of
13 New Jersey and I just want to provide you with a
14 few comments today about perspective on New
15 Jersey's potential for adoption of electric
16 vehicles which we're very excited about.

17 Our company is based around an open
18 standards based focus on future proofing while
19 helping site hosts, utilities and operators
20 manage the dynamic and changing electric vehicle
21 loads as we've been discussing today. We're also
22 part of the charge EVC Coalition.

23 We just like to kind of reiterate
24 some of the support for the legislation that
25 actually Lynn was outlining around SB 1975, the

1 goals and authorizations bill, the public DC fast
2 charging and rebate programs as well because we
3 do need a suite of different policies in order to
4 meet the 300,000 ZEV targets, provide GHG
5 benefits, provide air quality benefits and the
6 like.

7 The benefit for New Jersey for
8 transportation electrification provides
9 substantial benefit for New Jersey rate payers,
10 and these financial benefits go beyond just the
11 health and environmental savings that accrue.
12 Electrification allows opportunities to optimize
13 grid loads, reduce wholesale electricity rates
14 and facilitate resiliency.

15 Utilities have a really key part to
16 play in facilitating the development of EV
17 charging within the state as ICCT pointed out
18 during their presentation. Utilities are a great
19 place to help accelerate the market where there
20 hasn't been opportunities to date. And this is
21 particularly prevalent within the public realm,
22 not at residential facilities.

23 Utilities are in a place to attract
24 private investment and a really the key part is
25 they already have relationships with customers.

1 They're doing conservation and energy efficiency
2 programs. They're a great source for education
3 to their constituents and our key is reliability
4 and safety.

5 So in order to address the chicken
6 and egg anxiety that BPU alluded to earlier
7 today, we really feel that investment in public
8 fast charging equipment across the state will
9 really go a long way in implementing the
10 infrastructure that's necessary to meet the state
11 EV targets.

12 This provides the charging as well
13 as the buying opportunities for drivers who would
14 like to have an opportunity to install charging
15 and they don't have at home charging. Their
16 garage opens. They don't have access to the
17 resources at home, so it's absolutely critical to
18 have this investment in public charging
19 infrastructure in order to meet the EV targets.

20 And just to kind of conclude, we are
21 very much committed to helping build the EV
22 market here in New Jersey and feel that utility
23 role can really go a long way in facilitating the
24 development of this market and thank you very
25 much for your time. I appreciate it.

1 MR. EGENTON: Thank you, Emily.

2 (APPLAUSE)

3 MR. EGENTON: Do we have, I believe
4 it's Dan Udovic.

5 MR. UDOVIC: Good afternoon. My
6 name is Dan Udovic. I'm a physicist, an
7 electrical engineer, professional engineer, and
8 I'm a part owner of a 40 year old New Jersey
9 engineering firm that performs advanced
10 instrumentation and hybrid system design for the
11 public for industry in Military.

12 I also serve as the deputy director
13 of finance at Stevens Institute Center for
14 Intelligent Network Systems where my subject
15 matter is energy power and control systems.
16 INETS has recently performed analysis and
17 submitted companion reports to the Board of
18 Public Utilities that quantify the well to wheel
19 energy efficiency and the CO2 emissions of New
20 Jersey plug in electric vehicles compared to
21 other available light duty vehicle technologies.

22 I will submit a copy of this updated
23 report to the Clean Energy Council for their
24 consideration. INETS work on clean energy and
25 clean air technology is ongoing. From this point

1 on, I'm not going to be testifying for Stevens
2 Institute. I'm testifying as a professional
3 engineer who would like to assist New Jersey
4 government and legislators to identify and incent
5 those clean energy products having the greatest
6 potential to significantly reduce global warming
7 and the health damaging emissions due to gasoline
8 and diesel fuel vehicle travel.

9 The title of your public hearing was
10 Zero Emission Vehicles Cleaning the Air. There
11 are four key take aways that I wish to convey
12 through my testimony today. First that the term,
13 zero emission vehicle should not be used either
14 exclusively or interchangeably with the term
15 battery electric vehicle. Two other types of
16 zero emission vehicles presently exist which have
17 not yet received adequate attention by New Jersey
18 state in contrast to other states and countries.

19 They are, first, the hydrogen or
20 carbon neutral liquid fuel powered, fuel cell
21 electric vehicles. That's the first one, and
22 that's an electric vehicle technology. The
23 second one, which I think is even more important,
24 hydrogen or carbon neutral liquid fuel powered
25 internal combustion engine.

1 Of the three zero emission vehicle
2 technologies, the two just stayed in the battery
3 electric vehicle is my professional opinion that
4 the carbon neutral liquid fuel internal
5 combustion engine class of zero emission vehicle
6 comprised the least expensive and the most
7 comprehensive and fast path to achieving zero in
8 emission power traveled throughout New Jersey,
9 the world over the coming decade.

10 In an effort to advance this
11 possibility, INETS has recently submitted a paper
12 requesting four million dollars of funding of
13 which will match the four million dollars to
14 cover a two year long project which is titled, a
15 solar power direct preservation electrolyzer and
16 companion internal combustion engine genset
17 conversion technology for emission free homeowner
18 combined heat and power production and zero
19 emission of 1.2 billion IC engine vehicles.

20 The idea here is that internal
21 combustion vehicles can become zero emission
22 vehicles if you get them to consume hydrogen, and
23 there's work going on in the patents and
24 everything in place to do this, pursuing that
25 technology.

1 Carbon neutral liquid fuels is
2 actually putting hydrogen in liquid fuels that
3 have zero emissions, so the outcome of this is
4 it's much less of an invest, you can convert
5 vehicles, small sizes to be zero emission
6 vehicles at a much cheaper price and much faster
7 and more equitably throughout the world.

8 Not everybody in the world has the
9 money to buy battery electric vehicles or fuel
10 cell vehicles, so I just wanted to make you aware
11 of what -- there's other things that are
12 competing out there that I think have a lot of
13 potential.

14 Lastly, I don't think that battery
15 electric vehicles, if they're charged from the
16 grid should give the benefit of zero emission
17 vehicles. Half of our power comes from natural
18 gas on the grid, and half of it comes from
19 nuclear. Nuclear is clean energy fuel, no CO2
20 emissions. Natural gas produces CO2 emissions.

21 In the near future, there will be
22 nuclear power plants will be retired, and the
23 amount of CO2 emissions attributed to the
24 charging of electric vehicles is going to go up
25 by a factor of two, so I think you should keep

1 that in mind. I think what should be incentive
2 is building chargers that are being charged with
3 renewable energy, zero emission renewable energy
4 sources, not with fossil fuel. Thank you.

5 (APPLAUSE)

6 MR. UDOVIC: Any questions for Dan?

7 DR. BIELORY: You'll be sending us a
8 report. And do we have contact information for
9 you because I will contact you as well.

10 MR. EGENTON: You can submit it, as
11 I mentioned, through our website.

12 MR. UDOVIC: Yes, I will. I plan
13 to.

14 MR. EGENTON: Thank you, sir. We
15 have now Taylor McFarland from the Sierra Club.

16 MS. MCFARLAND: Hi, everyone. Sorry
17 Jeff Tittel couldn't make it, so I'll be speaking
18 on his behalf. I'll keep it short. So Governor
19 Murphy has pledged to join other leading states
20 in signing the state zero emissions vehicle
21 program, the Memorandum of Understanding. This
22 multi state contract aims to put 3.3 million
23 electric vehicles on the roads.

24 This will help us send a very clear
25 signal to the auto -- and to the White House. We

1 will work with other states and move forward on
2 electric vehicles. We need to accelerate the
3 passage of this legislation that sets an
4 important goal of 330,000 EVs on the road by
5 2025. This lasts us into that goal and requires
6 the DEP to plan for it. We only have about
7 12,000 now.

8 We also need right to charge
9 legislation allowing people to use private
10 charging stations. We also need to develop a
11 higher speed charging network and have utilities
12 provide for charging stations in areas where the
13 market won't initially reach. We need to offer
14 opportunities for people to buy EVs of all
15 communities including those with modest means
16 through rebates of cash for clunkers programs, we
17 can tax luxury gas guzzling vehicles or a carbon
18 tax on fuels to pay for rebates.

19 We can also electrify our ports to
20 reduce air pollution in these overburdened areas.
21 We need the BPU and the DEP to work together on
22 programs that advance EVs in New Jersey. We can
23 use the 141 million dollars for the Volkswagon
24 settlements to jump start EVs, especially by
25 helping people of modest means to buy EVs with

1 rebates. There are currently more than 20 fully
2 electric and plug in hybrid vehicles available at
3 U.S. dealerships.

4 GM is also discussing new models in
5 some states want to phase out gasoline cars all
6 together. New Jersey must continue support the
7 sale of electric vehicles and install charging
8 stations and commit to a more sustainable
9 transportation feature if we want to meet
10 California's goal.

11 We also need to be sure that
12 charging networks and incentives are targeted to
13 communities that have received a disproportionate
14 share of pollution, especially minority and low
15 income communities. This will help create more
16 jobs and move our state forward with an
17 automobile that has zero emissions and decreased
18 fossil fuels.

19 With ZEVs we can create thousands of
20 jobs, provide infrastructure around the state for
21 EVs and allow us to become leaders in EV
22 technology implementing a successfully EV system
23 in New Jersey will mean less money sent out of
24 state for petroleum, more in state jobs, better
25 vehicles for your constituents, less carbon

1 pollution and cleaner healthier air.

2 We can see the benefits of clean air
3 and clean jobs if we build a statewide network of
4 charging stations, create great jobs, save people
5 money on gas and reduce air pollution. We need
6 New Jersey to drive into the 201st century by
7 becoming a leader in the clean car technology.
8 Thank you.

9 (APPLAUSE)

10 MR. EGENTON: I believe I captured
11 everyone that officially signed up. If there's
12 anyone in the audience that hasn't spoken yet
13 that signed up, can you are let me know right now
14 because we're coming towards the end.

15 Just remember, I want to reiterate,
16 again, the written period is open until the end
17 of the month because we have a lot of work ahead
18 of ourselves to put this report together for the
19 commissioner and some other policy makers, so get
20 your written comments and thoughts to us.

21 MR. O'SULLIVAN: I'm Bill O'Sullivan
22 with the DEP. On behalf of the department, I
23 want to thank the speakers and the council
24 especially for your service. And then the DEP
25 folks that organized this great hearing, Heidi

1 Jones, sitting in the back room there, Peg Hanna,
2 did most of the planning and Andrea Friedman
3 sitting back there who drafted the commissioner's
4 speech.

5 (APPLAUSE)

6 MR. O'SULLIVAN: I think this was
7 the best organized hearing we've had to date with
8 the efforts of those three primarily and also for
9 based on our hearing chairs, good leadership and
10 the council and I have a challenge to the
11 council. This is the best hearing yet. I'm
12 looking for the best report and the most useful
13 recommendations you have, so thank you again for
14 your service and get to work.

15 (APPLAUSE)

16 MR. EGENTON: I also wanted to take
17 the opportunity to reiterate my gratitude to all
18 the invited speakers today being here and
19 spending the time with us and giving us very
20 valuable input. I want to also again say thanks
21 to Peg and Andrea and Heidi, Bill, Frank,
22 everybody here at DEP staff.

23 It was a good hearing today. It was
24 very organized, but it was only the product of
25 all of you helping us put together a great

1 hearing. That's why year after year, I've been a
2 long serving member of this council and every
3 commissioner always says, you know what, I have a
4 lot of respect for the Clean Air Council for the
5 work that you do and the input you provide, and
6 it's because of this and all your help. I want
7 to thank our stenographer for typing away.

8 (APPLAUSE)

9 MR. EGENTON: And of course again,
10 all of you for hanging in there. I think it's a
11 record. So with that, can I have an official
12 motion.

13 DR. BIELORY: Motion to adjourn.

14 MR. EGENTON: Can I have a second?

15 MR. WESTON: Second.

16 MR. EGENTON: All those in favor say
17 aye.

18 BOARD MEMBERS: Aye.

19 (Hearing Concluded at 3:32 p.m.)
20
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25

C E R T I F I C A T E

I, LAUREN ETIER, a Certified Court Reporter, License No. XI 02211, and Notary Public of the State of New Jersey, that the foregoing is a true and accurate transcript of the testimony as taken stenographically by and before me at the time, place and on the date hereinbefore set forth.

I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney nor counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in the action.

Lauren M. Etier



Notary Public of the State of New Jersey

My Commission Expires June 14, 2018

Dated: April 30, 2018

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