



State and Local Government Experiences with Workplace Electric Vehicle Charging

Webinar Transcript

March 12, 2019

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This transcript reflects the statements made during a live webinar on March 12, 2019. The transcript has been reviewed for accuracy. Any grammatical errors or otherwise unclear passages are true to the statements of the presenters.

I. Introduction and Poll Question I

Slide 1. Poll 1

Operator: Good afternoon ladies and gentlemen, and thank you for standing by. Welcome to today's State and Local Government Experiences with Workplace Electric Vehicle Charging Conference Call. At this time, all participants are in a listen only mode. If you require operator assistance at any time, please press star than the number zero on your telephone keypad. I would now like to hand the conference over to your speaker today, Andrea Denny. Please go ahead.

Andrea Denny: Thank you. Good afternoon everyone, and welcome to the webinar. My name is Andrea Denny and I'm with U.S. Environmental Protection Agency (EPA) State and Local Energy and Environment Program. Our program works to support state, local and tribal governments who are designing and implementing programs to reduce the environmental impacts of their energy use. We know many of you are thinking about how electric vehicles fit into your environmental strategy and we hope today's webinar will help inform that going forward.

Now that you know a little bit of background about me, we wanted to start with a poll to learn a little bit about our webinar audience today. We started the webinar by asking "Which of the following best describes your organization's experience with workplace charging?" It looks like we have a pretty even distribution across our four answers. So, about 36 percent have an active workplace charging program. Twenty three percent plan to launch one within the next few years. Another 31 percent are considering an electric vehicle (EV) charging program maybe a little bit further out in the future. The remaining 10 percent have no current plans to offer workplace charging; but hopefully you're interested in it and that's why you're here.

Slide 2. State and Local Government Experiences with Workplace Electric Vehicle Charging

Andrea Denny: So, that's great. We really appreciate that we have a variety of people here and the speakers will, I think, have a lot to offer people at various stages of the process. So, before we get into the actual speakers, I just wanted to say a few words about the webinar software itself.

Slide 3. How to Participate

Andrea Denny: First of all, we will not be doing a live question and answer (Q&A) where you are speaking just because we have so many people on the line. We do you use this Q&A box that you should have on your screen. At any time during the webinar you can type a question into the Q&A box. It would be great if you could indicate which speaker you would like to answer the question if you have a specific speaker in mind. Then we will look at those questions and moderate them at the end during the Q&A session. If there are questions we don't have time to get to during the Q&A time, we will ask our speakers to answer them and we'll post those answers along with the other materials on our website when we post all the materials from the webinar.

One other thing that we should note about the webinar software is that any links you see - like this one on the slide for the State and Local Webinar Series page - those are active links and you can click on them during the webinar and they will open up the link in a new browser window.

Slide 4. How to Participate

One additional way to participate - some of you already participated in our first poll. We will have another poll towards the end of the webinar. It's pretty straightforward and easy to participate, but if you're using a mobile device or tablet you may need to exit a full screen view and click on this poll icon which is circled here at the bottom of this list of icons in the black box. It looks like a ballot being dropped into a ballot box. That way you can let us know answers to the poll questions we're posing.

And then this third and final way to participate is to complete the webinar feedback form. At the end of the webinar we'll share a link. There's also a link that you may be able to see in your Q&A box. It's really useful for us to get that feedback, and it helps us plan future webcasts.

Slide 5. Today's Agenda

Andrea Denny: We have a great line up scheduled for today. We have federal, state, and local government speakers, so we're really getting at all levels of government here. Without further delay I'd like to introduce our first speaker.

II. Peter Banwell, U.S. Environmental Protection Agency

Slide 6. Introduction

Andrea Denny: Peter Banwell is the Marketing Manager of EPA's ENERGY STAR Program. He's been working in this field for a long time - a long history - has a lot of responsibilities, but the reason we asked him here to speak today is that he is managing ENERGY STAR efforts with electric vehicle chargers. Take it away, Peter.

Peter Banwell: Thank you very much Andrea. I think I'm gonna go over just a few things, just to give you an idea of what the ENERGY STAR program is and what EPA is doing in the efficiency space around EV chargers.

Slide 7. ENERGY STAR Certified Electric Vehicle (EV) Charging Stations

Slide 8. Efficiency Opportunities in Alternating Current (AC) Charging

Peter Banwell: All right, so the first slide here shows - this is actual test data on 32 different electric vehicle chargers. These are Level 2, and Level 2 is the type that charge at 240 volts, you know, about 7 kilowatts. These aren't the trickle chargers that come in every trunk of every car. They're the ones that are a little bit more powerful, a little bit faster than the others. They're commonly installed at homes and workplaces.

The graph here shows the ENERGY STAR specification and the allowances which are in the bars - individual bars - and then the hash marks show with the actual measurements of energy across a variety of different products. So we do have a little allowance for things like Wi-Fi, but for the very base allowance, if you look at number one - that's just a standard charger basically without features like connectivity - the allowance there's 2.5 watts for the specification. It shows the product's net specification, but then as you go further to the right you'll see that the 'no vehicle mode' of the charging increases with these different models.

The main take away is that if you look at actual measurements on what's happening when there's no car, the wattage varies between 2.5 watts, and then on the far right about 20 watts. So, by a factor of 10. We've developed this before ENERGY STAR came along; we set the limit on the far left at 2.5 watts and the industry has responded it doesn't look like this anymore. The takeaway is that electric vehicle chargers use a lot of energy when they're not in use, and you need to pay attention to ENERGY STAR.

Slide 9. ENERGY STAR Specification Today

Peter Banwell: The key features of the specification right now are energy savings of about 40 percent in the standby mode; and there are several modes, but I won't go into the details on what those different modes are.

Safety is kind of a surprise, but we heard from industry when we were developing the specification that there are Level 2 electric vehicle chargers being sold particularly through - not to pick on any one retailer - but Amazon that do not meet safety requirements. That's a little bit alarming to us, and a little bit surprising that that even takes place. So, the specification built in safety requirements and safety certifications are part of an overall quality control.

Finally, open communications. I think we're all sensitive to stranded technology or products that go in and out of business that may have proprietary communications. The basic idea is you don't want to

strand your equipment if a company goes out of business. You want someone else to come in, take over the network and basically not have any of the operators notice any difference. So with open communications and open protocols, that's possible. If it's a proprietary, closed system then it's not possible. We, as the federal government, like to encourage long term use and consumer protection, so open communications is something that we look for.

In terms of what the communication details are there; grid communications - so what is happening between the EV charger and the grid, open access meaning the units are accessible in terms of their communications protocols, and then consumer override - especially for demand response - that's something that's included in the in the software.

Slide 10. ENERGY STAR Charging Partners

Peter Banwell: Since we launched, we now have a fairly good fleet of charging companies. If you're not in the business, these all look like brand new companies. A lot of them are startups, which is good. A lot of them are spin offs of technology companies, and some of them are just electric vehicle charger companies. So, it's an interesting industry, but here are some of the companies that we're working with right now. Six months ago we didn't really have very much, and right now we've got a pretty good coverage in terms of the brands and the numbers of products that are out there.

Slide 11. ENERGY STAR Version 1.1 Specification

Peter Banwell: So that was a brief update on where we are with the sort of Level 2 specification. Version 1.1, we'll be looking at direct current (DC) fast chargers. DC fast chargers are the ones you might see on highways. Tesla is actually a DC fast charger. It's anything that basically goes beyond what you can do in your house. They usually start at about 50 kilowatts and they go up from there. The idea is you're trying to target the car driver who is in a hurry. They're either at a rest stop or they're shopping for half an hour and they're out of power. These are much bigger industrial units that are - if you go from Level 1 and go to Level 2 - these are well beyond what you would see in a household. They go from 50-150 all the way up to 250 kilowatts right now and they're designed, as I mentioned, for speed.

These models here are from Electrify America. Those are generally between 150-350 kilowatts and they're being rolled out across the country. You may have some experience in your own area, but what we're doing is we're modifying our specifications to take these into account, and we're gonna be looking at not just the standby loss, but we're gonna be looking at active charging efficiency. We have to look at heating and cooling because the units throw so much power they need heating and cooling systems. Then stand by losses are things that are being used when the vehicle is not charging. We're working on this right now.

Slide 12. Collaboration Opportunities

Peter Banwell: In terms of collaboration: how can we work together? What research do we have? I think one of the things that we're doing with a number of partners right now, both at the state level and utility level, is linking consumers to our qualified product list. Also, incorporating ENERGY STAR into your program in terms of our procurement, requirement, or recommendation. Also highlighting ENERGY STAR in terms of the equipment performance on your vendor list.

We've had different entities do this in different ways. Some started by mentioning ENERGY STAR in requests for proposals (RFPs). Some are calling it a hard requirement that all products must meet ENERGY STAR, but we'd be happy to talk to you and find out where you are in your program and what

your goals are before you take any steps, but we'd love to work with you on sort of building the market for ENERGY STAR because we think it's a win for consumers.

Slide 13. Introduction to Workplace Charging

Peter Banwell: All right, so a very quick introduction to workplace charging, since that's the topic of the day.

Slide 14. A Day in the Life of an Average Car (...after leaving home)

Peter Banwell: This is a day in the life of an average car. Now this is after leaving home. The biggest charging opportunity right now in terms of hours per day, also in most cases; in terms of what's best for the grid, unless you're in a very sunny state like Arizona or California, it's best to charge at night when the rates are low and when there's surplus power.

Here's what happens when the car leaves the house/workplace. The big one on the left and moving to the right - leisure destinations, shopping centers, travel stops. You'll see travel stops average very small on any one day, so if you're going to target that area for charging, it does need to be a DC fast charger because people literally just blow through. But at the workplace, Level 2, which is 240 volts/7 kilowatts or so, is sufficient to get people home and back to their house. It gives you an idea of where a car is during the day and a quick break down on where the opportunities are for charging.

Slide 15. The Value of Workplace Charging

Peter Banwell: In terms of the value of workplace charging; it's not just an expense for the company that installs the equipment. It really supports employees. It projects a sustainability image. It strengthens the corporate image and can help with the sustainability strategies that any company is trying to implement. There are values outside of convenience. It's really broader than that.

Slide 16. Employees & Workplace Charging

Peter Banwell: Employees and workplace charging. So, when there's workplace charging, the current EV drivers - some people do not have chargers in their home. They might just have a trickle charger. They might be reliant - they might live in a multi-family unit where there is no charging. So, you get increased confidence in people buying electric cars. They feel like they can get their charge at work and then make it home. And then, in terms of increasing the potential for EV drivers, it's an educational piece. It's something that can be seen every day, and really just reinforces the idea that EV charging is widespread.

Slide 17. Contact the ENERGY STAR Team with Questions

So that's just a quick update on ENERGY STAR and what we're doing and a very brief introduction to workplace charging. I'd love to talk to you more about what we're doing. We're working with utilities; we are working with some states and federal purchasing/state purchasing in certain areas. Happy to talk more with you about that.

Then the specification, if you're interested in that, I've listed two contacts here if you want to get into the details on the engineering, etcetera, or have some interest there. Here's the two other contacts. So that's going to wrap up my section. Thank you very much.

III. Maria DiBiase Eisemann and Zachary Owens, Colorado State Energy Office

Slide 18. Maria DiBiase Eisemann, Zachary Owens, Transportation Fuels and Technology, Colorado Energy Office

Andrea Denny: So now that you have that intro, and have a little bit of information about ENERGY STAR, I wanted to introduce our next two speakers who are going to talk about what's happening from a state perspective. Zach Owens is the Program Manager for Transportation Fuels and Technology at the Colorado Energy Office, where he manages the state's grant program to develop EV charging infrastructure across Colorado to promote the adoption of EVs to address air quality, climate change, energy independence, and economic development.

He'll be presenting today with Maria DiBiase Eisemann, a transportation policy analyst for the Colorado Energy Office. Maria develops and evaluates legislative and policy initiatives, which promote and reduce market barriers for alternative fueled vehicles and technologies, including electric vehicles. And before she joined the Colorado Energy Office she was also a co-coordinator of Northern Colorado Clean Cities, so she's a nice bridge from the state to the local government experience as well. Zach and Maria, please go ahead.

Slide 19. Colorado's Experiences with Workplace EV Charging

Zach Owens: Thank you for the introductions. We're happy to be with you all here today on the webinar. Just a little bit about the Colorado Energy Office: we are an office of Governor Polis, who works to administer policies and programs to help meet his energy vision for the state.

Slide 20. Transportation Fuels and Technology

Zach Owens: Our Transportation Fuels and Technology team focuses on three core areas. One is program management to administer grant funds for charging infrastructure. We also work on policy and planning to help make Colorado an attractive place to own and operate electric vehicles, and finally education and outreach - getting the word out about the benefits of electric vehicles to consumers and other stakeholders. We definitely view webinars like this today as an avenue to help meet that objective.

Slide 21. Background: Charge Ahead Colorado

Zach Owens: We're gonna start off with some background information about our programs here at the Energy Office, just so everyone has the same orientation once we dive deeper into Wired Workplaces. First we operate a program called Charge Ahead Colorado, which is a partnership between our office and the regional Air Quality Council. We provide grants for community-based Level 2 and DC fast charging stations across the state. You can see the map here of where we have awarded stations since 2013. So far we have a word with 782 stations across the state

Slide 22. Charge Ahead Colorado

Zach Owens: A little bit more about Charge Ahead Colorado: eligible applicants include local governments, school districts, state agencies, and non-profits, but apartment and condo complexes, as well as private businesses - especially workplaces, are a priority for us within the program. A little more about the program: you can see on this chart here our funding sources and the eligibility information.

What I'd like to call your attention to is our incentive levels. We fund up to 80 percent of project costs. For Level 2 stations we'll fund up to \$9,000 and for DC fast charging stations - that's 50 kilowatts or higher - we'll fund up to \$30,000.

Slide 23. Background: Refuel Colorado - Education and Outreach

Zach Owens: Now I'm going to pass it over to Maria to continue some background information.

Maria DiBiase Eisemann: Another program we have here at the Energy Office is one for education and outreach. It's called Refuel Colorado. The program covers the whole state. We have 5-6 coaches, and their territories are represented by the colors on the map here. Those coaches are alternative fuel experts. Now they're doing more with electric vehicles, but they understand electric vehicles and they understand charging stations. They can help somebody figure out where to cite them, how to apply for Charge Ahead Colorado, the kinds of things that a good application should contain. They can work with fleets and help fleets identify where electric vehicles would make a good choice and some questions around charging of their fleets, and they also serve as a great resource for workplace charging and our Wired Workplace program.

Slide 24. Background: Wired Workplaces

Maria DiBiase Eisemann: We have a program called Wired Workplaces. It is a recognition program that started back in 2015. At that time applicants - and we wanted them to work with Refuel Colorado - signed on to the U.S. Department of Energy's (DOE's) existing Workplace Charging Challenge, which I hope most of you are familiar with, and that required you follow a set of best practices. Then we wanted them to install charging stations and we encouraged that to happen being funded through our Charge Ahead Colorado program. And then, if they did all that was required, they got a plaque signed by the governor and we encouraged them to hold a ceremony with the help of our Refuel Colorado program.

As many of you probably remember, the DOE's program ended in 2017. So, then what we did - since we had been depending on their program [inaudible] - since that ended, we've then incorporated their requirements into our program. We made some minor modifications to it - slight modifications - but we basically took those requirements and put them into ours. And then we continued in that way until the fall of 2018. That program is on hold right now. We're attempting to evaluate the value of the recognition part of it, and we'll talk about that more in just a little bit.

Slide 25. Background: Award Program Steps

Maria DiBiase Eisemann: The steps that an applicant had to go through to get the award was - we wanted them first to work with our Refuel Coaches, and then they were to conduct a survey of their employees. The DOE had a survey; we adapted it just a little bit. We added a few more things to it and we added at a parameter where we can collect data.

Then we wanted them to install a charging station, including considering getting the Charge Ahead Colorado grant. Then they needed to take the pledge that required them filling out a form. That form is based on the one from the DOE program. We also incorporated a pledge that Drive Northern Colorado did along with Northern Colorado Clean Cities, and then we made a few more changes on it to allow us to collect some more data to monitor the program.

Once they fulfilled all those steps we would provide them with a plaque signed by the governor, and we encouraged them to have an awards ceremony, and maybe somebody from the Colorado Energy Office or an official in the town or one of our Refuel Coaches would be present to make the award

Slide 26. Colorado Wired Workplace Awardees (15)

Maria DiBiase Eisemann: We had 15 Wired Workplace awardees in the program, and we celebrate them on our website where we recognize them. We have a spot on our website where we recognize these awardees.

Slide 27. Colorado Wired Workplace Awardees

Maria DiBiase Eisemann: Here's a picture of a couple of celebrations. You can see the plaque, and we usually have the charger; or you can see that there's some kind of ceremony going on.

Slide 28. Background: Colorado Electric Vehicle Plan

Maria DiBiase Eisemann: Some more background to show the importance in our state that we attribute to workplace charging is we recently, last year—in January 2018, released the Colorado Electric Vehicle plan. That plan, in addition to setting a target of building out key charging corridors, facilitating economic development, boosting tourism and reducing harmful air pollution, also had a target of accelerating the adoption of EVs to insure Colorado remains a leader in the EV market. And one of the goals to reach that - in our plan we call out - increasing the number of public and private employers in Colorado that provide workplace charging to employees.

Slide 29. Charge Ahead Colorado Data

Maria DiBiase Eisemann: Now I hand it over to Zach.

Zach Owens: As Maria mentioned, in the fall of last year we began evaluation of our workplace efforts, and so in terms of Charge Ahead Colorado - again, that's the program where we fund Level 2 and DC fast charging stations - we actually require that the stations are networked and collecting use data so we can pull information. We tend to compile it every six months, so our most recent report as you can see, we pull our top 10 performing stations and their averages, and our top three are actually workplaces in Fort Collins and Glenwood Springs. Number one and number three are both in Fort Collins, Hewlett Packard (HP) and Broadcom. Number two is Glenwood Springs Mountain Valley Development Services.

We found it interesting that our top three highest performing workplaces were actually not recognized with the Wired Workplace plaque, as you might recall from us a couple of slides ago. These three were not formally issued that award.

Slide 30. Charge Ahead Colorado – Data

Zach Owens: So, just to provide some additional context on the Charge Ahead Colorado data: these are the number of charging stations that we funded by type. You can see the majority are actually in parking garages and workplaces, followed by leisure destinations and municipal buildings.

Something I'd like to call out about the parking garages and lots is that those tend to be mixed-use locations - there's retail and workplaces nearby, so it's a little challenging to pull out the specifics within those parking garages and lots and really identify who's a workplace charger versus a visitor. But the

takeaway is very likely that some of that percentage of parking garage and lots are actually workplace charging as well.

Slide 31. Charge Ahead Colorado – Data

Zach Owens: In terms of the actual number of charging events - this is someone plugging into the charger, it doesn't necessarily say how long they were plugged in - you can see we see the most charging events again at those parking garages and lots, followed by workplaces, and then leisure destinations and municipal buildings follow after that.

Slide 32. Charge Ahead Colorado – Data

Zach Owens: Finally, in terms of electricity consumed, again you could see our parking garages and lots and workplaces are tied both at 30 percent. For us, this is indicative that our Charge Ahead Colorado program definitely sees a lot of use at workplaces, and they continue to remain a priority for us, as Maria said, in the EV plan to ensure we're targeting installation of chargers at workplaces so that folks can charge.

Slide 33. EV Wired Workplace Evaluation

Maria DiBiase Eisemann: Seeing the results - we're constantly monitoring Charge Ahead Colorado - and we're seeing the results that people are still adopting workplace charging aside from our Wired Workplaces program. Some of the higher achievers aren't in fact in that program, although Hewlett Packard was in the program in Northern Colorado. It was kind of a flag to us that we should evaluate the value of the program.

It does take some resources for us to implement. The plaques do have a cost associated with them. They're signed by the governor; that takes a little bit of time to pull that together, and then we need to send either someone from our office or one of the Refuel Coaches go out to the actual ceremony and that takes time as well. And then, to adequately recognize them takes some PR, and we didn't know if we were doing that adequately as well.

So, we started evaluating the program; really high level information as we start to evaluate that. For example, we had one of the state agencies that was awarded - they had 10 EVs purchased after they became a Wired Workplace. A couple of non-profits, one of them saw four more EVs. Another lost two owners of EVs. Then the two universities, University of Colorado and Colorado State University, saw big increases in the number of EVs that went in after Wired Workplace was awarded.

What is hard is - we can look at some of these types of metrics, but it doesn't tell us -- it's hard for us to separate the impact of that award part of the program from other efforts. Like, just because you had an electric vehicle supply equipment (EVSE) there, that caused people to buy EVs? Maybe some of our other incentive programs was the big push in their employees buying EVs, or maybe they had more access to EV fleet vehicles. We're finding it somewhat difficult to tease out the effect of the award from other factors that may impact an employee's decision to purchase an EV.

Slide 34. Looking Forward

Maria DiBiase Eisemann: So looking forward, because as you can see, workplace charging remains a priority for this stage, it's embedded in our Charge Ahead Colorado program, it's in our Refuel Colorado program and it's also in our EV plan. So the question we're still evaluating is do we continue issuing

these Wired Workplaces awards? And if we do continue, how can we make it more impactful, how do we leverage it for greater education and awareness opportunities?

We have some ideas around that but we're looking into that as well. Because right now we're in the process of strategic planning and were determining how to proceed. This webinar is somewhat timely; we definitely welcome any feedback we could get at this time for webinar participants.

Slide 35. Colorado Energy Contact Information

Maria DiBiase Eisemann: So thank you, thank you for your time and the opportunity to present to you today.

Andrea Denny: Thanks so much, Maria and Zach. If you guys - if anyone listening does have feedback or suggestions for Colorado, you can feel free to type those into the Q&A box and we will pass that information along. And just a reminder to please continue to submit questions. We've seen a number come in but it's always good to have more so if you have questions, please type those in and we can address them in the Q&A time.

IV. Michelle Finchum, City of Fort Collins

Slide 36. Michelle Finchum, Lead Sustainability Specialist, City of Fort Collins

Andrea Denny: I do want to introduce our third speaker. Michelle Finchum is a lead sustainability specialist for the City of Fort Collins, Colorado. She focuses on municipal sustainability, building a culture of sustainability, and specializes in employee engagement. And as part of that, in 2015 she led the Workplace Charging Challenge for electric vehicles. So we invited her here today to talk about what's happening with workplace charging in Fort Collins. Thanks, Michelle.

Slide 37. Electric Vehicle Workplace Charging Challenge

Michelle Finchum: Thank you very much. So again my name is Michelle Finchum and I'm going to share with you our experiences in 2015 and then relate those at the end of this presentation to 2018 and where we are today.

Slide 38. Overview

Michelle Finchum: So we did participate in the Department of Energy's Workplace Charging Challenge. This is me getting our certificate from the Department of Energy thanking us for our participation and I'm going to go back and explain how and why we participated and what exactly we did.

Because just based on the survey that we got at the very beginning of this webinar, several people on the call are in the planning or considering or have no plans to perhaps you can get some ideas from some of the work that we did back in 2015 and continue today.

Slide 39. Drive Electric Northern Colorado

Michelle Finchum : So electrification coalition back in 2014 designated Northern Colorado as a hot bed and pilot area to try this deployment of electric vehicles. So you got to take yourself back a little bit to just kind of scary word - electric vehicles - that nobody really knew about and there was a lot of anxiety. I think different parts of the nation are in different places today but we had definitely move forward from that but in 2015 I just want you put the mindset into what, I don't even know what that word is, or what are these things called electric vehicles? So they formulated a group called Drive Electric Northern Colorado and I'm going to refer to them a couple of times because they were a major partner throughout our efforts.

Slide 40. Alignment

Michelle Finchum: So the first thing we have to do well when approached by Drive Electric Northern Colorado and that was something that we agreed to, the City of Fort Collins and the government, agreed to supporting them with find alignment within our own organization.

We do strive to be a world class city; we have a climate action plan which is quite aspirational. We have our energy policy as well which has very high level goals for where were using and how we're using our energy in the city and we consider ourselves a high-performing government. So those were the things that I was able to attach to, to say that we were working, doing part of this Drive Electric Colorado networking and the Workplace Charging Challenge was in alignment with the stuff that we were doing. And also is within alignment of with the values of the organization which was innovation and collaboration. And I would say that electric vehicles are still in this space of innovation.

Slide 41. Formal Agreement Workplace Charging Challenge

Michelle Finchum: After that, we were able to get our city leaders on board. This is our Mayor at the time, Karen Weikunat, and our Deputy City Manager, Jeff Mihelich. This is a February 2015 event where they publicly announced as well as many other organizations and businesses, that you can see in the background on that banner there, that we were formally taking this pledge and we are going to be joining the challenge. So there's another key step for us to have this leadership buy end at a very high level.

Slide 42. Energy.gov Website

Michelle Finchum: This is a snapshot of the Department of Energy's Workplace Charging Challenge Partners. That red dot there is kind of that Northern Colorado region is actually that cluster of orange dots that were pointing to there and those are all of the organization you kind of saw in the background of the last slide that were participating in the workplace charging challenge.

So the City of Fort Collins is one of those dots and we were kind of loners out there and Colorado in the West there. But certainly the eastern part of the United States and western part of the United States were bought into this and Northern Colorado was kind of a hot bed in testing sites for this workplace, this concept of workplace charging challenge. So we were still wrapping our head around what are the benefits, why some of the stuff we've already covered in this webinar.

Slide 43. Workplace Charging Challenge Objectives

Michelle Finchum: So these are the three things that we set out to do in 2015: provide infrastructure (also known as (AKA) charging stations for employee that owns electric vehicle), examining policy or create a policy and educate and engage our staff, so that's what I'm going to go through right now.

Slide 44. 2015

Michelle Finchum: So I'm going to start with some of the data that we collected. We had 17 pool cars at the time and of those 17, 10 were actually kind of what you see in this picture and actual car, about seven of them is what I call like a parks and rec small vehicle kind of thing. But we did have pool cars already in our system. We went out and surveyed staff as best we could, we could find five in our organization of about 2,000+ people, five people and in 2015 that owned an electric vehicle and we did have one charging station set up because we have been putting some charging stations in for our pool cars. Somewhere along the lines, we had put one in for workplace charging, wasn't really being used but it was kind of there.

Slide 45. Awareness – internal communication

Michelle Finchum: So this is where we started. So we started, we to do awareness. And basically, all the stuff on the side here is just the things that we could do, the internal resources that we had for internal communication. I want to draw your attention to the bottom where it says our goal was 250 employees drive in an electric vehicle in 2015.

So this was our North Star, we set this at about 10 percent of the organization, we have about 2,000 people working here. So if we could get 200 employees that sat in the seat and drove an electric vehicle by the end of 2015, then we were successful, so that was our goal. So we started with the pretest, ended with the post test, we did all these kind of internal things that we had available including what the picture is of the site is an intranet site.

Slide 46. Highlighting City employee EV owners

Michelle Finchum: So we started by highlighting the few city employees that had an EV. So we put them on our website, we hire them again through internal mechanisms that we had that these people own this car, have a conversation with them, talk to them, they might be working in the same building that you are working in, etcetera. So these are two of the five people that owned an electric vehicle at the time and just kind of highlighted, took pictures of them, etcetera, just to start that conversation.

Slide 47. Drive Leadership – City Council

Michelle Finchum: And then we embark in the summer on something called Drive Leadership and this is where we really relied on our partner Drive Electric Northern Colorado because they were our brokers with the dealerships. And so we came into agreement with all of the dealership that at the time were selling electric vehicles, which weren't a lot, but if they were selling an electric vehicle then they looked into a contract to have basically an extended drive (3-5 days).

So basically you're renting a car. You get the rent a car for three to five days and our local dealership shipped in the car for three to five days kind of thing. And so these are city council members; we had all but one city council member in an electric vehicle, the one chose not to own one, didn't feel the need to be in one. And so this is our new mayor because we had a new mayor in May. So this is our mayor, two of our city council members and they were able to do an extended drive, have a car for three to five days.

Slide 48. Drive Leadership – Executive Leadership

Michelle Finchum: Then we did and replicated the whole process again with our executive leadership so this is Chief Financial Officer, Chief Sustainability Officer, Chief Head of the Utilities Executive Director etcetera, deputy defeated directors and of course our city manager here all have the same chance to three to five days.

So we were building just by having this is an extremely advantageous step for us because if any policy went through, which remember, policy was the second thing that we were looking at, we needed to have some of our leadership having experience in these cars. So we were making sure that we have that buy in from the very top and those experiences at the very top and then after we get that, we focus on staff.

Slide 49. City employee Picnic Ride and Drive event

Michelle Finchum: So this is a picture of a city employee picnic, we have this every year. In 2015, only we haven't sent but that year we again work with all the dealership and we had one of each kind of car available in the market in 2015 which wasn't very many. There this is I believe a Tesla here last year and that was popular but we had all of the different kinds of cars available for a ride and drive.

So city employees just went, signed up, signed a little waiver and went for a joy ride for 10 or 15 minutes, came back and the next city employee went in. So we were measuring all of this because remember, we were trying to get 200 city employees driving. So that was one that we did and we replicated this a couple of times but this certainly was our biggest event.

Slide 50. Coffin Break Halloween EV event

Michelle Finchum: And then what we did, we thought we were so clever, we called it a coffin break and provide coffee but once you have to explain that joke about six times you realized it wasn't very funny, but anyway we thought we were being very clever. On Halloween, we had a coffin break Halloween EV event, so what we did is we gathered every single pool car that we had at the time, all 10 of them, made sure that they are available in the parking lot, invited people out for cookies and coffee, invited them to dress up and we came out and hosted this event all over again but only as city vehicles.

Because what we were finding with our pool cars is we were starting to buy them but people were not using because they didn't understand how electric vehicles work, how to charge them all the kinds of concerns that you might have. So we did this event as well, focusing just on our pool cars that we have.

Slide 51. Awareness – external communication

Michelle Finchum: In conjunction, I have to mention, we did some external communication however this wasn't the focus, these just kind of popped up over time. And so we did do a couple of these externally communication things but we were really focused internally. And the reason I had Jimmy Lakey up there is he's a conservative talk show host in Northern Colorado, super interested in what the dealerships are doing around electric vehicle so when in as the City of Fort Collins representative and talked about what the market was looking like and what these things called electric vehicles were. So these are just some of the things that we did externally as well.

Slide 52. 6 new employee charging stations in parking garage

Michelle Finchum: So with the Charge Ahead grant that was mentioned earlier, we did put in six new employee charging stations in our parking garage on the fourth floor of our parking garage so we went from 1-7 by the end of 2015; and remember we only had five people in the organization with electric vehicles, so we were definitely planning for the future with this.

Slide 53. Help employees know other 2015 Infrastructure

Michelle Finchum: And then with this was our policy that we looked at. Within the policy, we put in a 2-year pilot policy so it expired in two years. And with that, we were looking at covering the cost of charging for any staff that had a vehicle, we would cover the charging costs at work. We were looking at signage – what consistent signage would look like signage real quick and what that (unintelligible) communication.

So right now there's tons of apps and other things that tell you where charging was, back 2015 this map was so cool because it tells you where all the charging stations were in the city of Fort Collins kind of on this really small grid map. But just trying to quell some of those concerns over range, anxiety, etcetera.

Slide 54. Workplace Charging Challenge Objectives

Michelle Finchum: So that policy really address who was going to pay for the electricity, how were staff going to know about it that they need a permit? Those kinds of things. So again, the three things that we were trying to achieve in 2015 were provide that infrastructure, examine a policy, and educate and engage.

Slide 55. Fast Forward to 2019

Michelle Finchum: So we did reach all of our goals with that. We did get well over 200 staff driving an electric vehicle.

And I want to fast forward to 2019 where we are today. So in the year 2018, we spent pretty much the whole year convening a community group to create what we call the EV Readiness Roadmap for Fort Collins. In that EV Readiness Roadmap for all the strategies, Fort Collins needs to take both since of community and as a government in order to make our community EV ready.

So, all of this work basically paved the way. We had people sitting at the table who remembered driving a car in 2015 or had that leadership experience that we provided with them. We had a lot of awareness and so we were not in the business of creating a lot of awareness in 2018. The awareness was already there and was building off of the work that we did in 2015.

And we also created enthusiasm for staff and I don't want to minimize this at all because there is, I think, a lot of anxiety maybe around owning an electric vehicle or even driving a cool car and you create enthusiasm and excitement around that is something worth recognizing. It was great to include leadership, in fact I think that's the key part, that's why spend some time talking about it.

The perception of EVs and what were you doing in the city is also very important and we increase our charging station but these are all awesome things that came out of the work of 2015 that's kind of paving our way today. Some of the issues that we face was the policy, we let expire on purpose, we need to revisit that policy, the employee charging stations are not being used as they were intended and part of that was the parking code.

So we need to make sure that the parking code says that there's an enforcement piece around electric parking spots designated with electric vehicle charging stations. And so those things take time and we were out of sync with parking code updates and so on. And signs became an issue. Signs are not cheap and signs are everywhere and we just needed a cohesive plan around where to put signs, so if one were to enter the parking garage, they know where the EV spots are. Sometimes they're very prominent, but for employees we needed to make sure they knew that they were up on the fourth floor. And one of the bigger issue is - it took quite a bit of time. It was exciting work and a lot of great things happened but it took a lot of staff resource and so we needed to reevaluate who and what staff are working towards that.

So right now, we do have two staff members that are leading the charge, leading the work in the City of Fort Collins right now and we do have an inter-departmental team. And basically, the work we're doing right now is following our EV Readiness Roadmap because like I mentioned, within that roadmap there are actual strategies for the government to do and to look at that. And a lot of these issues that I have listed here are strategies in our current EV Readiness Roadmap.

Slide 56. Michelle Finchum Contact Information

Michelle Finchum: So that is our experience from 2015 to today. I just want to mention a personal story that I had no clue what an EV was in 2015 when I was assigned as project manager for this and in 2017 I bought one, so it works for me.

I drove it. I actually benefited from the extended drive. All my staff that were working on it, I looked into it too, not just the leaders and we started building awareness of the family around it. And when 2017 came around we bought ours, so I wanted to close at that small story. Thank you.

Andrea Denny: Thanks Michelle, that was great. So we are now going to, as we transition into the Q&A, we're going to put up another quick poll.

V. *Poll Question II*

Slide 57. Poll 2

Andrea Denny: Just if you want to go ahead and take a minute to read that, we're asking about what kind of additional information would help you as you design, implement or improve your workplace charging program. You can choose more than one answer. And hopefully we will be able to work on getting some of that information to all of you.

So we'll just give people a minute to respond. Okay looks like the answers are slowing down so I think we can go ahead and close that poll. So it looks like there's a lot of interest in a number of different resources. Very few people, less than 5 percent, said they have everything they need so good luck to those of you that feel like you are ready to go out and take it EV charging world by storm.

More than 75 percent indicated that information or case studies around best practices would be helpful. Over 50 percent felt that contact organizations were running programs would be helpful so Zach, Maria, and Michelle you might be getting a lot of follow-up from this webinar. Sixty four percent indicated that technical information and specifications on how to design and implement a program would be useful.

Another 14 percent or so felt that there were other resources that would be helpful. Please go ahead and let us know in the Q&A box what type of other resources would be helpful. That would be really great. So we do have time for a few questions before we wrap up today.

VI. Question and Answer Session

Slide 58. Question and Answer Session

Andrea Denny: So I wanted to start with a question that I think can be answered by both the staff from Colorado Energy Office and Fort Collins which is a question about how many staff or full time employees (FTEs) are devoted to your respective program.

Maria Eisemann: Hi, this is Maria. I would say that it was a part of our team. Each person on the team did a little bit with Wired Workplaces but it's a fraction of we do a lot here and so it's really just a fraction of three peoples' times.

Andrea Denny: Great and Michelle?

Michelle Finchum: Yeah. I think we're in the building the case mode for an actual FTE to be focused on electric vehicle. We're not there yet. We have currently two staff, myself included who have this on their work plan in addition to other duties, certainly not full time FTE. And we have an inter-departmental team, different staff from transportation, utilities, etcetera who touch it and meet on a quarterly basis and meet actually at the state level and participate in some of those conversations there. So zero FTE but that's kind certainly and we're definitely tracking it that we can build the case one day to have a more dedicated staff.

Andrea Denny: Great thanks. So for Colorado we had a number of questions come in when you were talking about your data slides, your pie chart. So just pulling out a couple, there were some questions about how many vehicles a month or charges a month that kilowatt-hour might correspond to from your top 10 kilowatt-hour users? And I know it you might not have exactly that data but if you have any sense of that and then also questions about how much the users pay to use those charging stations that were installed?

Zach Owens: Sure, this is Zach. You know, I would need to go back to our actual database to pull and correlate number of unique charging events but I can certainly do that post-webinar and follow-up if that's possible.

Andrea Denny: Absolutely

Zach Owens: In terms of payment, we do not mandate a payment strategy for any of our grantees so it's a little bit of - we put the impetus on the grantees to form a payment strategy. Over time now we have been able to evaluate who's doing what and we started to put a best practices document together that's currently in draft form.

I think we see a variety of ways that workplaces handle this. Many provide it as a free benefit for their employees so they're not charging to charge. Some like I believe HP actually puts in a fee after four hours to encourage folks to move their car to help manage the queue. We see some charge a very nominal fee, just direct kilowatt-hours or a small price per hour. It really does vary across workplaces. Maria, do you have any other thoughts on that?

Maria DiBiase Eisemann: No, but the state of Colorado is currently finalizing a policy for our employees on whether or not to charge.

Andrea Denny: Great and one more question for Zach or Maria about Charge Ahead Colorado. The person was curious, how you did outreach to workplaces and if there was any hesitancy from cities or schools or workplaces and just if you could talk a little bit more about that process?

Zach Owens: Well I think our main avenue has been Refuel Colorado that Maria manages, so encouraging our Refuel Coaches to target workplaces. In addition to that, it's just getting the word out any way we can. Umbrella organizations like Building Owners and Manufacturers Alliance (BOMA) (who have building managers as members that have worked places within them, capitalizing on lunch and learn opportunities and webinar opportunities to get the word out is a big priority for us as well. Maria, do you have other thoughts?

Maria DiBiase Eisemann: Yeah I was going to say, we really get the word out through our Refuel Colorado program and I'd just like to give a shout out to Clean Cities because three of our Refuel Coaches are Clean Cities coordinators and they leverage their extensive mailing list. Whenever we announce a funding round or whatever, it'll go out through their networks as well. So that is a great way that we can get the word out about what we're doing and our programming.

Andrea Denny: Great, so what we did have a number of questions come in, Michelle, for you. I don't think we're going to get all of them but I did want to at least get a few of them. So one that came in was how Fort Collins deals with fringe benefits with respect to providing free electricity, I guess, to some employees but not all employees or is there a payment model or a charge to use the workplace chargers?

Michelle Finchum: Great question and one that we're still wrangling with in the name of equity and making sure that benefits are equitable across the organization just because you happen to own an EV do you get extra benefits? It's a great question and I would say the jury still out for us as far as what that looks like right now.

We only have two charging stations that are consistently used by employees and we're picking up the tab for the electricity. But, as we move forward with our EV Readiness Roadmap, that is certainly one of those hard conversations that we're going to have to end to and solve. So I am happy whoever answered that question to talk to you about that more and find out if anybody wants to form like a working group on how to tackle that, I am all in.

Andrea Denny: Great, thanks Michelle. Another question for you was for the pool cars, the city fleet vehicles that are electric vehicle, has there been any efforts to get feedback from employees that are driving those cars, particularly with regard to range anxiety or any other issues that they're having while driving those vehicles?

Michelle Finchum: I'm so glad - that was one of the little things I forgot to mention that we have. And looking right now, I think it's 23 right now, so we've increased our pool car significantly. And feedback, definitely feedback and often times the feedback comes in the form of, whoa, I drove out to Denver and didn't realize I was in an electric vehicle then get stranded. So there's just more outreach and knowledge from the fleet services that are renting out pool cars. Are you aware that you're in an electric vehicle, do you know what to do? So, we learned that the hard way. I feel like you had two parts to your question, I only answered the first part.

Andrea Denny: Now I have to find the question again.

Michelle Finchum: I'm sorry.

Andrea Denny: I figured just whether you did any systematic process to get feedback or to collect feedback?

Michelle Finchum: Yes, we did and as a result, we continue to buy more and more electric vehicles; when we retire a vehicle that is always our first option. And we help the different departments who are in need of a new vehicle explore all other options including EVs and hybrids, not just replace it with whatever they had before.

Slide 59. Connect with the State and Local Energy and Environment Program

Andrea Denny: Great, thank you so much Michelle. We do have a number of other questions that have come in as well as some really, what looks like really useful feedback about resources that would be helpful. So we will pass those unanswered questions along to the speakers. We will be posting the presentation, the recording of the webinar and the unanswered question with answers on our website. It usually takes us 2-3 weeks to get all that material posted but it will be up there. You should have also received an email this morning with all the presentation so you have those in the interim.

With that I just want to thank all of our presenters one more time, we really appreciate your time and speaking about the work that's happening in your workplaces and in your communities. A reminder to all the participants that if you click on that big link in the middle of your screen that says webinar feedback form, it will bring you to our feedback form and it's really helpful to us to plan future webinars so we hope that you'll take a minute to fill it out.

You can also follow the links at the bottom of the slide to sign up for our newsletter if you would like to hear about future webinars or other resources and helpful announcements. We have a lot of information on our website about energy and environment broadly. And with that, I'm going to turn it back over to the operator to conclude the call. Thank you everyone for participating today.

Operator: And this does conclude our conference for today. Thank you all for participating. You may all now disconnect.