



U.S. Department of Energy's EV Everywhere

# Workplace Charging Challenge

Progress Update 2014: Employers Take Charge



## A Message from the Assistant Secretary

As the Workplace Charging Challenge nears its second anniversary, I am pleased to reflect on the continued rapid advancement of plug-in electric vehicles (PEVs), the exciting progress to date of our partners and ambassadors, and the phenomenal growth in the number of organizations that have joined the Challenge since its inception.

What began as a commitment by 13 founding employer partners has now grown more than tenfold to include 150 organizations. These leaders are accelerating the development of our nation's worksite PEV charging infrastructure and are supporting cleaner, more convenient transportation options within their communities. Our Challenge partners are currently providing access to PEV charging stations for more than 600,000 employees at more than 300 worksites all across the country and are influencing countless other organizations to do the same. Additionally, 16 ambassador organizations and our national Clean Cities coalitions are recognizing our partners' hard work and conducting PEV outreach activities with employers and communities across the country. With this strong and growing team, I'm confident we'll accomplish the Challenge goal to increase the number of workplace charging participants to more than 500 by 2018.

Through the Challenge, the Energy Department aims to raise the profile of the benefits of workplace charging and to recognize our partners' outstanding accomplishments. A few ways we've done this in 2014 include:

- Workplace Charging Challenge Summit 2014, which convened employers from across the country to share best practices with their peers and return to their workplaces with new ideas and resources for accomplishing their workplace charging goals.
- Press event with NASCAR and Sprint as part of a ribbon-cutting ceremony for 24 employee charging stations across four states.
- Workplace charging recognition event with Drive Oregon to welcome 13 new partners.
- Weekly social media posts highlighting partner and ambassador workplace charging efforts.
- Video segment on Maryland Public Television's MotorWeek program, reaching millions of viewers worldwide.

We're also working to reduce challenges employers face as they develop and manage their workplace charging programs by providing technical assistance. In addition to responding to individual inquiries, highlights from this year include:

- New in-depth informational publications on workplace charging topics, such as ADA compliance, charging station bid solicitations, and DC fast chargers for the workplace.
- Quarterly newsletter to keep Challenge participants up to speed on news, events, opportunities, and incentives.
- New PEV and charging infrastructure data from the Energy Department's National Laboratories to inform workplace charging program management and policies.

Drivers across the country are recognizing the benefits of PEVs: 2014 sales reached nearly 79,000 in the first eight months, a 32% increase over the same period in 2013. As of September 2014, more than 250,000 PEVs are on our highways, powered by electricity made right here in America. To help both current and potential EV drivers better understand the cost of driving an EV, the Energy Department created the [eGallon](#), which represents the cost of fueling a vehicle with electricity compared to a similar vehicle that runs on gasoline. These drivers can fuel their vehicle for \$1.29 worth of electricity compared to \$3.30 a gallon of gasoline to drive the same distance.

We thank our Challenge partners and ambassadors for their efforts to provide charging as a valuable employee benefit. By embracing sustainable workplace practices, Challenge employers are making it easier for employees to do the same. With the Challenge's foundation firmly in place and outstanding partners and ambassadors leading the charge, we look forward to many more great American organizations joining the Challenge in the year ahead.

*Dr. David J. Danielson*

Assistant Secretary for Energy Efficiency and Renewable Energy  
U.S. Department of Energy

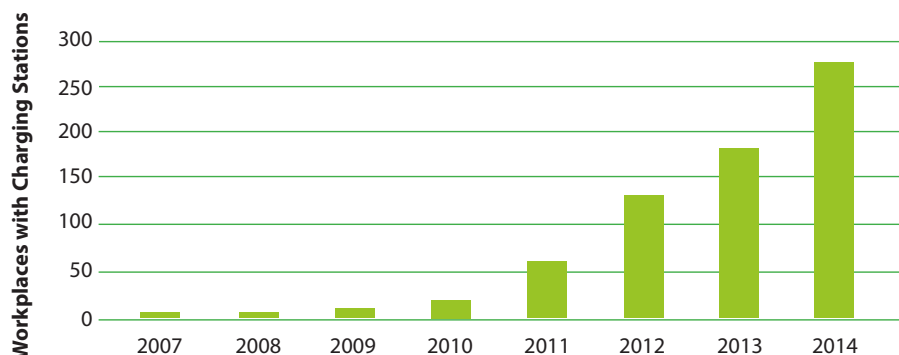
## Early Successes and Insights from Workplace Charging Challenge Partners

The Workplace Charging Challenge distributed a survey to partners in August 2014 to determine the impact and progress of the Challenge and to identify best practices for workplace charging. 80% of partners responded to the survey, providing the information shown throughout this progress update. 2014 will serve as a baseline for measuring partner and Challenge progress, since this year marks the first that participants reported on their programs and plans.

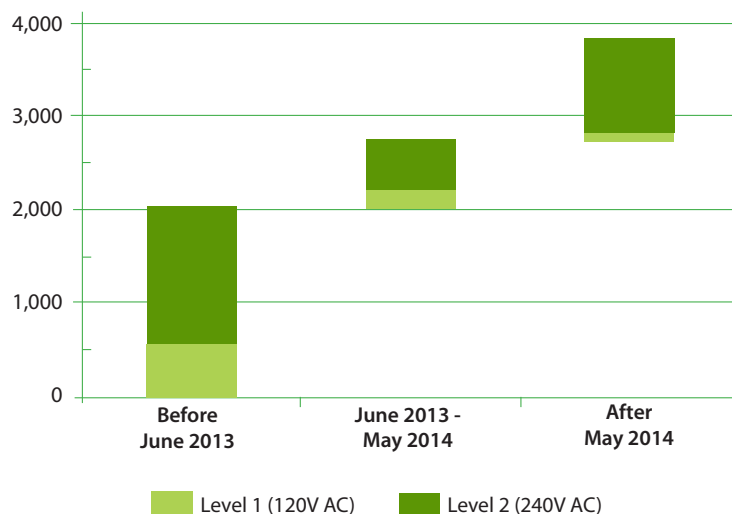
### Key Findings of 2014 Annual Survey

#### Installing & Managing Workplace Charging

##### Cumulative Growth in Partner Workplace Locations with Charging Stations



##### Installed and Planned Partner Charging Stations Almost Doubled in the Last 2 Years<sup>1</sup>



<sup>1</sup> Partners also have 35 installed or planned DC fast charging stations

The Challenge builds upon the experience of its founding partners; some of these partners installed their first charging stations in the mid-1990s.

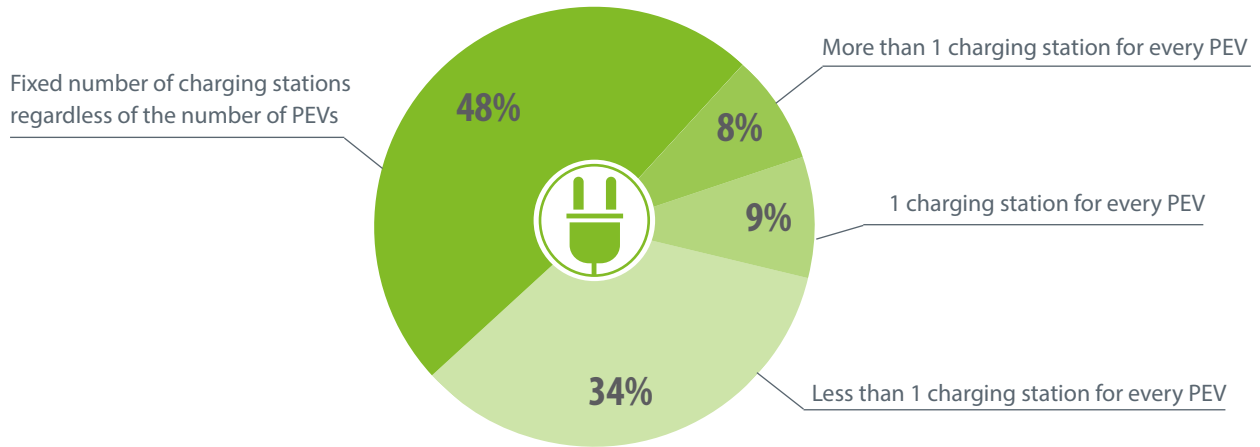


Partner workplaces with charging access increased year-on-year 40% in 2013 and an additional 45% in 2014.



Photo by Dennis Schroeder, NREL 28211

## Partner Plans for Charging Station Installation



Partner workplaces with free charging: 1 in 67 employees drive a PEV to work

Partner workplaces with fee-based charging: 1 in 97 employees drive a PEV to work

## Partner Billing Policy

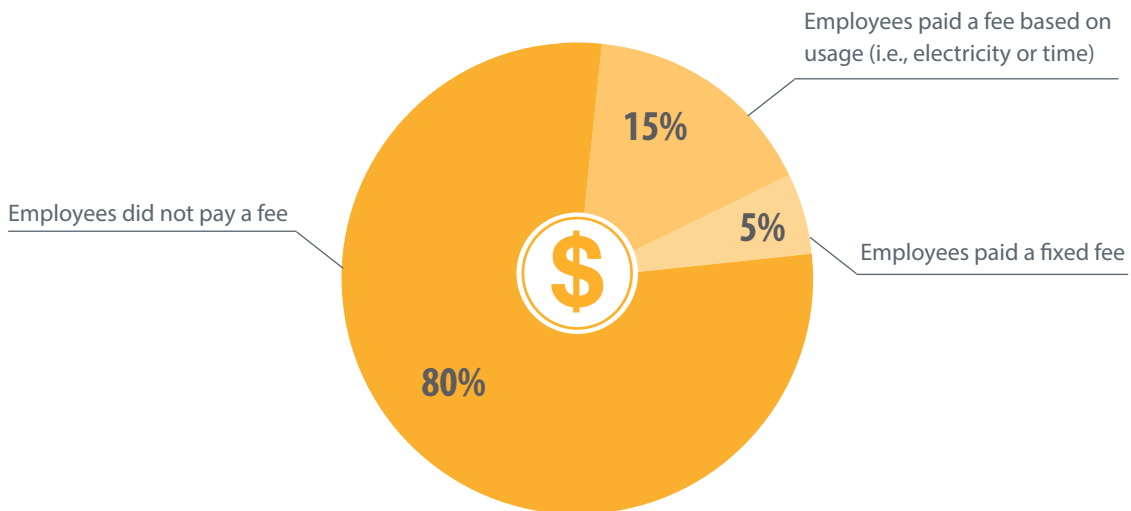







Photo by Dennis Schroeder, NREL 26764

## Workplace Charging Utilization

	<h3>Charging Up Employee Satisfaction</h3> <p><b>95%</b> of responding partners' employees express satisfaction with their organization's workplace charging program</p>
	<p><b>90%</b> of responding partners reported that their workplace charging stations are fully occupied at least 5 days per week</p>

## Employee PEV Ownership

The average<sup>1</sup> reporting workplace has **11 charging stations** and **26 PEVs**.




Workplace Charging Challenge partner employees are **20x** more likely to drive a PEV than the average worker. **1 in 73 partners' employees** drive a PEV, while the national average is 1 in more than 1,400 employees.<sup>2</sup>

Employees commuting to workplaces with charging stations now own over **5,000 PEVs**.

<sup>1</sup> Average calculation and ratios reflect only survey responses that included number of PEVs and kWh utilization.

<sup>2</sup> Ratio derived from July 2013 snapshot of 108,325 EV registrations (R.L. Polk & Co.) divided by 155,693,000 members of the workforce (BLS [http://www.bls.gov/schedule/archives/emp-sit\\_nr.htm#2013](http://www.bls.gov/schedule/archives/emp-sit_nr.htm#2013))

## Partner Electricity Utilization and GHG Reduction

81 workplaces reported an average kWh utilization of **10 kWh per charging station** per day.

Utilization of electricity **reduced about 370,000 gallons of gasoline** and about 2.5 million pounds of GHG emissions at those workplaces between June 2013 and May 2014.<sup>1</sup>

Calculated benefits show that all partner charging stations in operation by June 2014 would provide an estimated annual kWh usage of 6.7 million kWh. This usage would be saving 800,000 gallons of gasoline and 5.5 million pounds of GHG—the equivalent of **removing nearly 1,500 average cars** from U.S. roads.<sup>2</sup>

<sup>1</sup> Calculated from data provided by survey respondents that reported kWh utilization and average conventional and electric vehicle fuel economy; EPA GHG Equivalencies Calculator, <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>.

<sup>2</sup> Extrapolation based on the ratio of charging stations at survey respondents' workplaces that reported kWh utilization to charging stations at all workplaces of all survey respondents.

## Partners Leading the Charge

Workplace Charging Challenge partners have the potential to widely impact the economic and environmental sustainability of their organizations, communities, and the nation. With worksites in nearly 40 states, partners demonstrate that there is a need for workplace charging across the country. From small businesses, hospitals, universities, and governmental organizations, employers are demonstrating that workplace charging is not just for large corporations. Partners demonstrate their leadership by going above and beyond to not only provide PEV charging access, but also to promote PEV deployment among employees, conduct media outreach, and adopt PEVs in their fleets. True to the best-practices sharing mission of the Challenge, more than 60% of partners who responded to the Workplace Charging Challenge annual survey indicated that they have helped other employers with their workplace charging efforts in the first years of the initiative. The following is a selection of outstanding partner commitments since the Challenge launch in 2013:



3M's workplace charging goal is to provide a power source to every employee with a PEV working at 3M Center, the company's headquarters in St. Paul, Minn. Currently, 23 employees charge at 3M Center daily, and that number continues to increase as more staffers learn about the benefits of electric vehicles. To date, 3M has made 42 charging stations available for employee use, and they can utilize these power sources to obtain a Level 1 charge for their PEV during the workday. 3M has also made Level 2 charging stations available for visitors to 3M Center.



Alameda County, California, has fully embraced PEVs to help meet its Climate Action Plan goals, and its employees can access charging at six of its county worksites. The county has installed 40 charging stations to date, the majority of which are dedicated to public use. To further promote the early adoption of PEVs in the community, the county's board of supervisors passed a resolution that made these stations available for free to the public until the end of 2014. In addition, over 50 PEVs are currently utilized in the county's fleet. Alameda County is also the lead agency for the Local Government EV Fleet Demonstration Project, which is funded by the Department of Transportation and aims to deploy 90 PEVs and charging stations across 10 government agencies in the San Francisco Bay area.



Founded in 1948, AVL Powertrain Engineering, Inc. (AVL) develops and performs simulation and testing of powertrains for passenger cars, trucks, and large engines. By installing workplace charging stations, AVL is helping build the infrastructure that will allow its employees to take advantage of the technology they work on every day. Nine AVL employees currently charge their PEVs at work. AVL has installed four charging stations for its employees at two of its facilities in Plymouth, Mich., and plans to expand offerings to its Lake Forest, Calif., location and Arbor, Mich., facility in the future.

**Baxter** Baxter's commitment to sustainability extends to its employees. At its Illinois locations, the company has installed four dual head Level 2 charging stations, capable of charging eight vehicles simultaneously. With increasing demand, a fifth Level 2 charging station is being installed. Additionally, many Baxter facilities globally provide onsite PEV charging. The number of employees driving PEVs continues to increase, partially due to a unique financial incentive that Baxter and the Baxter Credit Union offer to employees who purchase PEV or hybrid technology vehicles. In October 2014, Baxter hosted fellow Illinois employers in a one-day workplace charging workshop. At the event, Baxter and its PEV-driving employees were offered first-hand insight into the benefits, challenges, and solutions of workplace charging.

## *The Coca-Cola Company*

By taking a leadership position on sustainability, Coca-Cola aims to inspire others to act positively. At its headquarters in Atlanta, Ga., the company initially installed 12 Level 1 charging stations. It was not long before more employees made the choice to drive electric based on the company's support—120 Coca-Cola headquarters employees now drive PEVs to work. In fact, workplace charging became so popular that the company has installed a total of 75 Level 1 charging stations, the most Level 1 units deployed by a partner outside of California.



Concurrent Design is committed to clean energy and is purpose-built to support the development of clean energy products. Concurrent Design aims to have no upstream fossil fuels involved in vehicle charging at their office. The small business currently has one solar-powered Level 2 charging station available for use by its 18 employees and has infrastructure in place to install another charging station when demand increases.

## Google

Google believes that PEVs help the effort to reduce transportation's carbon footprint, improve air quality, and increase the adoption of renewable energy sources. To support its corporate car share program and encourage employees to buy their own PEVs, Google provides free workplace charging access for its 25,000 employees. Google deployed more than 750 charging stations across its Mountain View headquarters and other Google locations. In addition to promoting PEVs internally, Google supports local organizations' PEV outreach efforts and encourages employees to speak about workplace charging and PEV fleets at conferences and events.



The Hartford, a 204-year-old insurance and financial services firm, is on the cutting edge of corporate environmental stewardship. In 2011, the company installed PEV charging stations on its Connecticut campuses in Hartford, Simsbury, and Windsor. This effort is helping The Hartford meet its greenhouse gas reduction targets. The company adopted its third target—to reduce GHG emissions by another 20 percent from its 2013 base by 2018—after reaching its second target ahead of schedule. To encourage the use of PEVs, The Hartford not only offers free charging to more than 7,000 employees at the Connecticut locations, but it is also the first insurer in the United States to offer PEV premium discounts to its customers.

## Raytheon

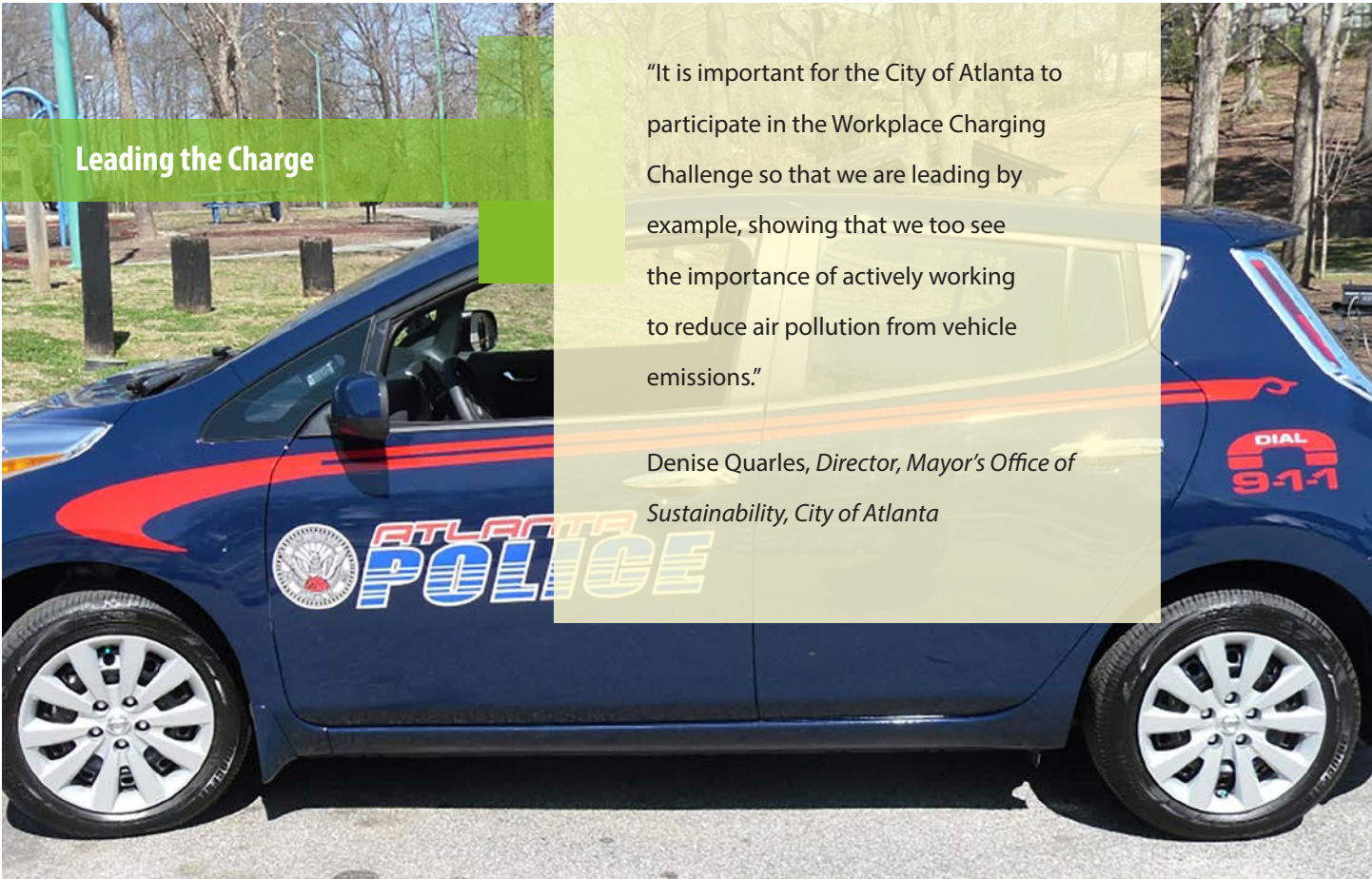
Raytheon provides workplace charging access to more than 20,000 employees across seven locations in Arizona, California, Colorado, Massachusetts, Texas, and Virginia. These 30 Level 2 charging stations represent just one of many initiatives Raytheon has implemented as part of a sustainability program that aims to reach 15 long-term sustainability goals by 2015. These goals include reducing GHG emissions, energy usage, water usage, and waste, as well as the greening of Raytheon's supply chain operations and products. Raytheon personnel have presented their lessons learned on the installation and use of charging stations at numerous conferences and forums, showing the company's commitment to support workplace charging not only at their facilities, but also at other employer sites.



San Diego Gas & Electric (SDG&E) has installed pay-for-use employee charging at 14 of its worksites to serve its growing list of 70 employees who have purchased PEVs, and to provide implementation examples for its customers. By accessing the charging stations, employees can commute to and from work and can also conveniently travel throughout the work day and reach the furthest boundaries of the utility’s 4,100 square-mile service territory. In addition to providing employee charging, SDG&E is a leading utility in the effort to promote PEV deployment among its employees and customers through California Public Utilities Commission-approved outreach and education efforts, such as PEV ride and drive events.



For the University of North Carolina at Pembroke (UNCP), workplace charging is one of the commuting transportation strategies that supports the campus’ sustainability goal of becoming carbon neutral by the year 2050. Some of the electricity utilized by PEV drivers using one of the campus’ first two charging stations will be offset by a 2kW solar photovoltaic array. UNCP also plans to install up to four more charging stations on campus in 2015, with additional charging stations installed due to employee demand and funding.



**Leading the Charge**

“It is important for the City of Atlanta to participate in the Workplace Charging Challenge so that we are leading by example, showing that we too see the importance of actively working to reduce air pollution from vehicle emissions.”

Denise Quarles, *Director, Mayor’s Office of Sustainability, City of Atlanta*

*Photo from City of Atlanta*



## Partners

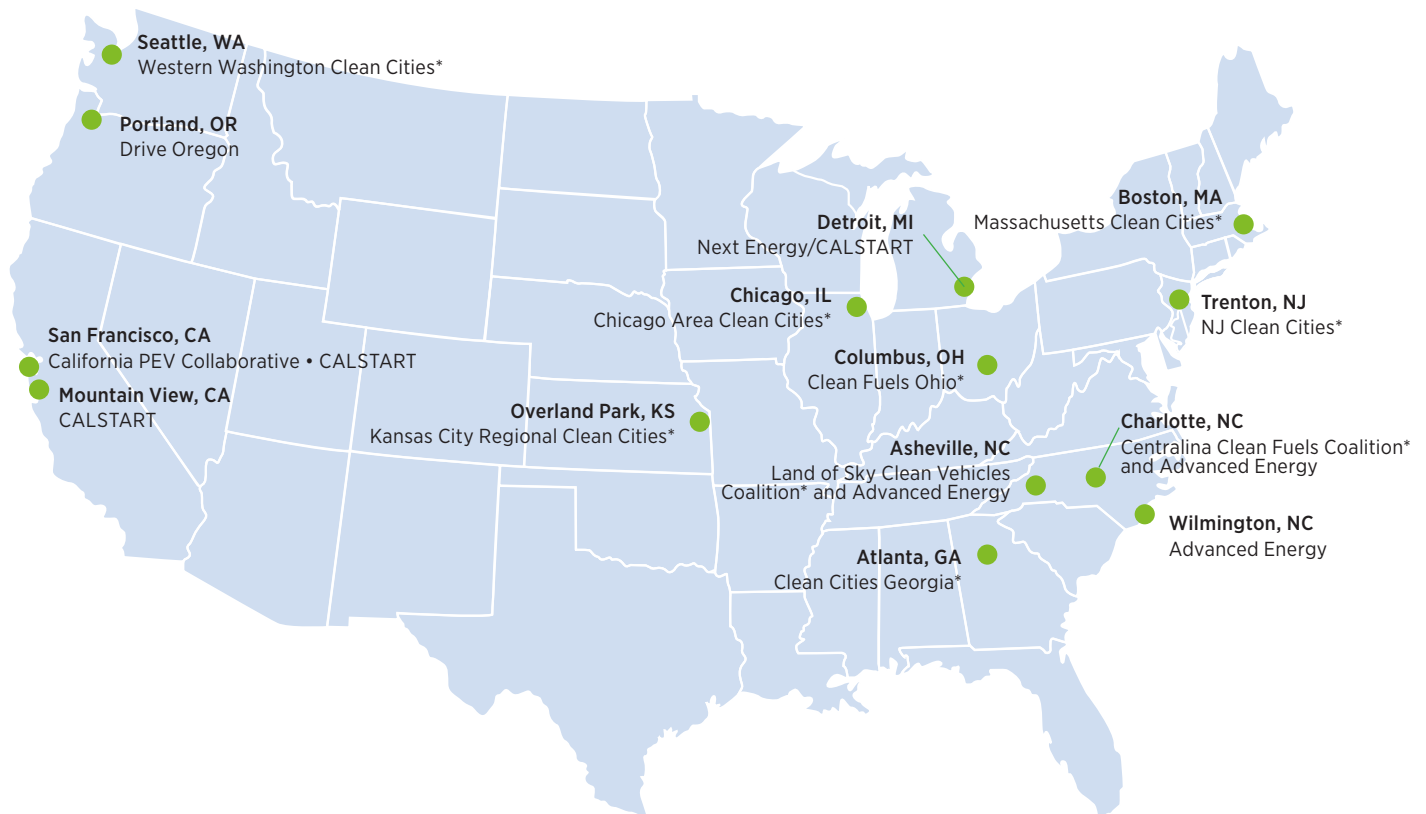
Workplace Charging Challenge partners commit to assessing employee demand for PEV charging at the workplace and to developing and executing a plan to provide PEV charging access for employees. As of November 2014, 150 employers have joined as partners in the Challenge.

200 Market Associates	Ford	Pepco Holdings
3M	Fraunhofer Center for Sustainable Energy Systems	Phil Haupt Electric
ABB	General Electric	PJM Interconnection
Advanced Micro Devices	General Motors	Pomona College
Advocate Health Care	Georgia Institute of Technology	Portland General Electric
AeroVironment	Google	PPL Electric Utilities
Alameda County, CA	Great River Energy	Prairie State College
Arkansas Power Electronics Inc	Green Cab VT	Providence Health & Services
Atlanta Regional Commission	Green Mountain Power	Raytheon
AVL Powertrain Engineering	Green Wheels	Rockwood Lithium
Avista Utilities	Greenlots	Samsung Electronics
Baxter Healthcare Corporation	Hannah Solar	San Diego Gas & Electric
BECO South	Harris Civil Engineers	SAP
Bentley Systems	Harvard University	SAS Institute
Biogen Idec	Heartland Community College	Schneider Electric
Bloomberg LP	Hertz	SemaConnect
BMW North America	IBEW #48 (International Brotherhood of Electrical Workers)	Shorepower Technologies
BookFactory	IDEXX Laboratories	Siemens
Broward County, FL	Intel	Sierra Nevada Brewing Co.
Capital One	JLA Public Involvement	SolarWorld
CFV Solar Test Laboratory	Kaiser Permanente	Southern California Edison
ChargePoint	Kankakee Community College	Southern Company
Chrysler	Kaskaskia College	Sprint
Cisco	KEMET	State of Illinois
City of Atlanta, GA	Kohl's	State of Oregon
City of Auburn Hills, MI	Lane Regional Air Protection Agency	TECO Energy
City of Beaverton, OR	Lawrence Berkeley National Laboratory	Telefonix
City of Hillsboro, OR	Legrand	Territo Electric
City of Hillsboro, OR	Lewis and Clark Community College	Tesla
City of Palm Springs, CA	Leviton	The Coca-Cola Company
City of Sacramento, CA	Los Angeles Department of Water and Power	The Hartford
Classique Floors	lynda.com	The Venetian and The Palazzo
ClipperCreek	Melink	Township High School District 214
College of Lake County	Mentor Graphics	UL
Concurrent Design	MetLife	University of California Los Angeles
Consumers Energy	Mitsubishi	University of Louisville
Conrad N. Hilton Foundation	NASCAR	University of Maine
Dell	National Grid	University of Maryland Baltimore
Dominion Resources	NetApp	Washington Medical Center
DTE Energy	New York Power Authority	University of North Carolina at Pembroke
Duke Energy	Nissan	University of Vermont
Duro-Last	Northern Illinois University	Utah Paperbox
Eaton	NRG Energy	Verizon
El Camino Real Charter High School	Oak Ridge National Laboratory	Vermont Energy Investment Corp
Electric Power Research Institute	OpConnect	Volkswagen Group of America
Eli Lilly	OSRAM SYLVANIA	WESCO
EMC Corporation	Pacific Gas & Electric	Westar Energy
EMD Serono	Pat's Garage	Wisconsin Public Service Corporation
Envision Solar	Pentair Water Pool and Spa	World Wildlife Fund
Evolution Marketing		Zappos
EV Grid		Zero Motorcycles
Facebook		
FEV		

## A Nationwide Network of Workplace Charging Ambassadors

Challenge ambassadors are fulfilling their pledge to promote workplace charging. Ambassadors have worked with employers to increase PEV deployment and expansion of workplace charging across the United States. Notable efforts since the Challenge's launch in 2013 include:

- Drive Oregon included workplace charging as a key topic of its EV Roadmap 7 conference and held a recognition ceremony for 15 Challenge partners from Oregon.
- Plug In America and the California Center for Sustainable Energy organized and supported a number of workplace ride and drive events, including those held at Google's Mountain View, Calif., headquarters.
- California Plug-in Electric Vehicle Collaborative's Drive the Dream Initiative brought California Governor Jerry Brown and 40 Fortune 500 executives together to announce corporate commitments to workplace charging.
- CALSTART and the California Plug-in Electric Vehicle Collaborative developed case studies, decision guides, and other resources to help employers determine if workplace charging is a suitable option for their organizations.
- Next Energy, Advanced Energy, Land of Sky Clean Vehicles Coalition, Clean Fuels Ohio, and CALSTART held workshops for employers to learn about workplace charging best practices.
- Clean Cities coalitions are reaching out to employers in their communities and providing technical support for the development and deployment of workplace charging. Coalitions in Georgia, Illinois, Kansas, Massachusetts, New Jersey, North Carolina, Ohio, and Washington have hosted educational workshops and convened stakeholder meetings to encourage workplace charging at the local level.
- The map below shows events hosted by ambassadors in 2013-2014 to recognize and educate employers.



\* Coalitions designated under the National Clean Cities program

## Ambassadors

Ambassadors commit to supporting and promoting the deployment of workplace charging infrastructure.

Advanced Energy

California Plug-in Electric Vehicle  
Collaborative

CALSTART

Center for Sustainable Energy

Clean Cities

Clean Fuels Ohio

Drive Electric Vermont

Drive Oregon

Edison Electric Institute

Electric Drive Transportation  
Association

Electrification Coalition

Green Parking Council

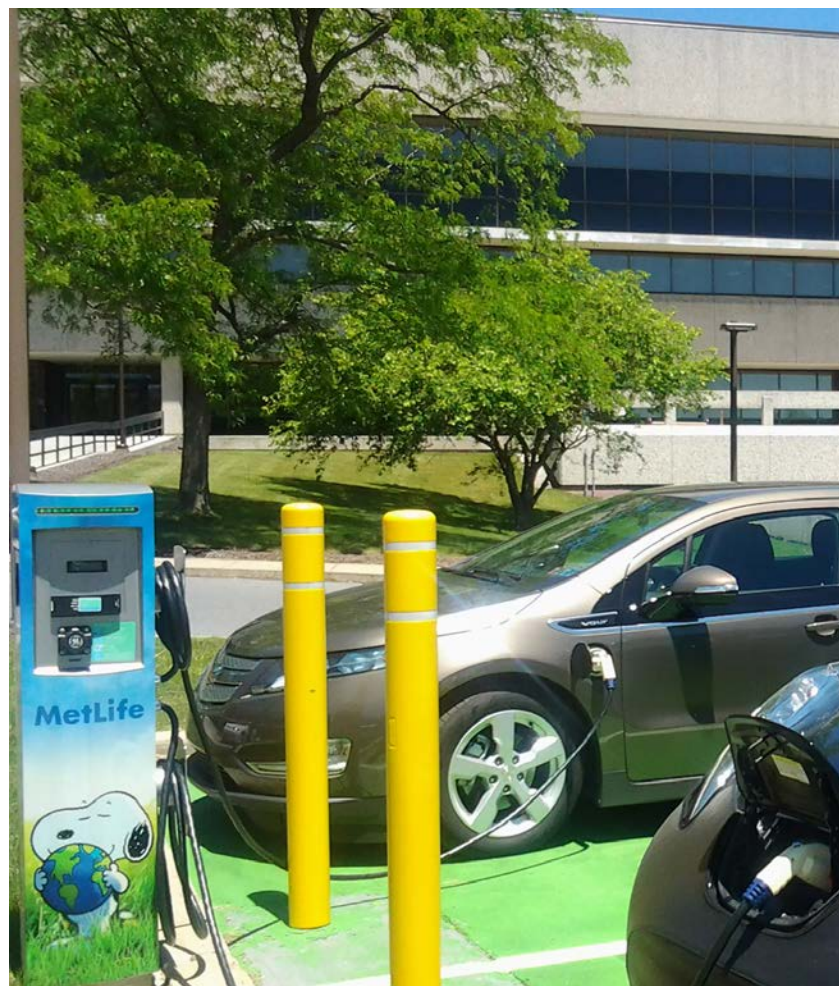
Green Sports Alliance

International Parking Institute

NextEnergy

Plug In America

Rocky Mountain Institute



*Photo from MetLife*

## Leading the Charge

“MetLife is a great employer, and its recognition and support of PEV charging only proves their forward thinking and quality as an employer meeting their employees’ present and future needs.”

*Steve Feldman, PEV-driving employee, MetLife*

## Join the Charge: Become a Workplace Charging Challenge Partner

The U.S. Department of Energy's Workplace Charging Challenge is open to employers of all sizes and industry types, in all regions of the United States. Taking the Challenge offers benefits to employers who are considering installing PEV charging stations, as well as those who have successfully launched workplace charging programs. Becoming a partner in the Challenge allows your organization to gain access to informational resources, peer-to-peer networking, one-on-one technical assistance, and recognition for your workplace charging efforts. More than 70% of partners surveyed reported receiving outside recognition for their workplace charging efforts. Survey respondents also noted that they are receiving positive staff feedback, with 95% of partners' employees expressing satisfaction with their workplace charging program. To learn more and join the Challenge, contact [WorkplaceCharging@ee.doe.gov](mailto:WorkplaceCharging@ee.doe.gov).

For further information, visit [electricvehicles.energy.gov](http://electricvehicles.energy.gov).

### Leading the Charge

"All feedback has been positive. Our employees realize it's a symbol of innovation, and they support it. If anything, they'd probably like to see more charging stations within the next year."

– Brad Tomm, *Senior Manager for Campus Operations and Sustainability, Zappos*



Photo from Zappos

### Join the Workplace Charging Challenge

The U.S. Department of Energy is inviting employers to advance the deployment of plug-in electric vehicles by signing the Workplace Charging Challenge Pledge, a commitment to providing employee charging.

Learn more about the Challenge and how to join at [electricvehicles.energy.gov](http://electricvehicles.energy.gov).

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