Better Buildings®
U.S. DEPARTMENT OF ENERGY

How to Drive Change with Workplace Charging

Better Buildings Summit May 27-29, 2015

U.S. DEPARTMENT OF ENERGY

How to Drive Change with Workplace Charging

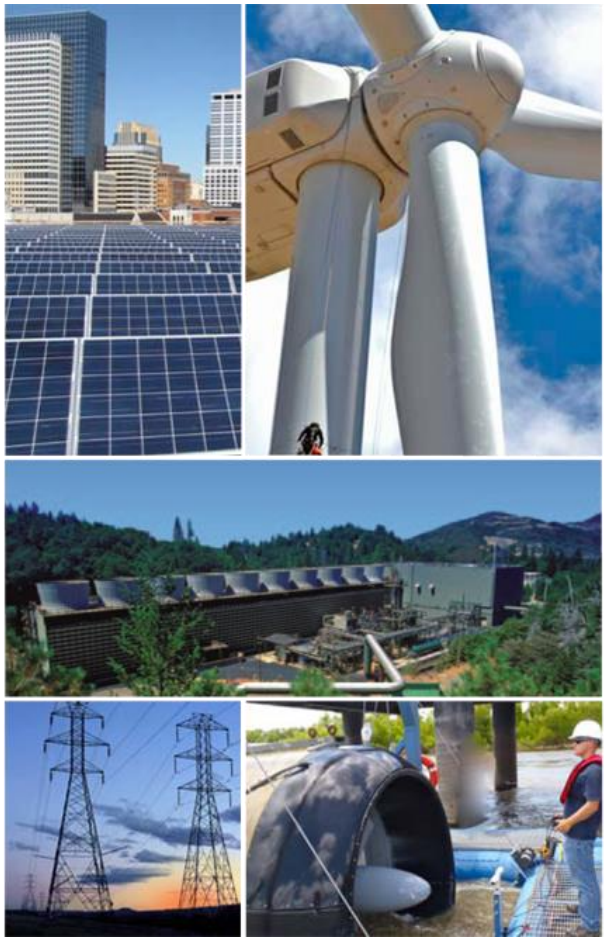
Better Buildings Summit| May 28, 2015

Sarah Olexsak, Workplace Charging Challenge Coordinator
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy

Sustainable
TRANSPORTATION

Renewable
ELECTRICITY GENERATION

Energy Saving
HOMES, BUILDINGS, & MANUFACTURING



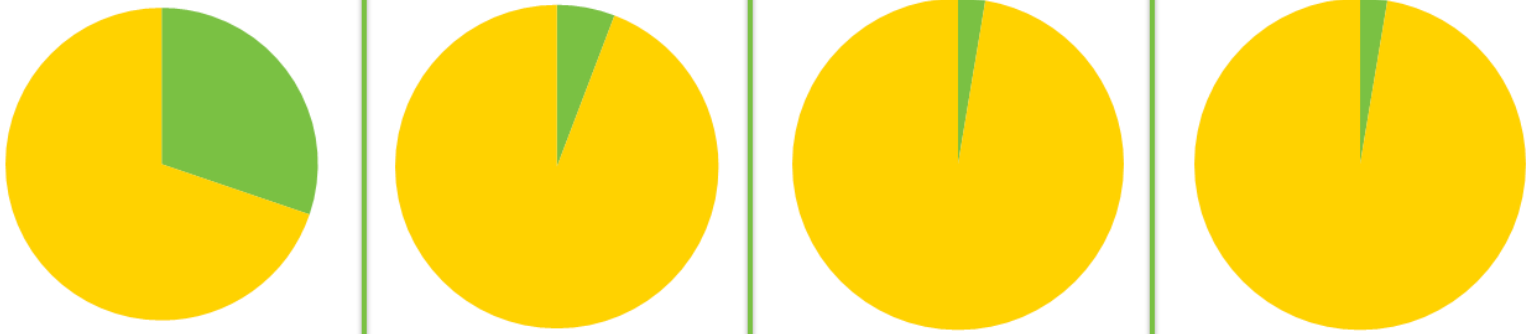
DOE Office of Energy Efficiency & Renewable Energy

Workplace Charging Challenge
U.S. DEPARTMENT OF ENERGY

EV Everywhere Grand Challenge: affordable & convenient PEVs by 2022

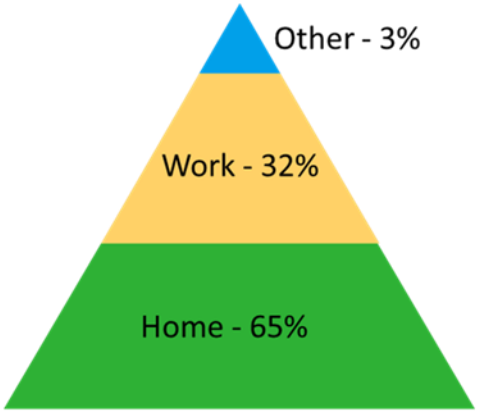
The workplace **presents** a prime charging opportunity

	Workplace	Leisure Destination	Shopping Centers	Travel Stops
Day in the life of an average car	6.5-8+ hours	47 min-2 hours	28-48 min	15-53 min



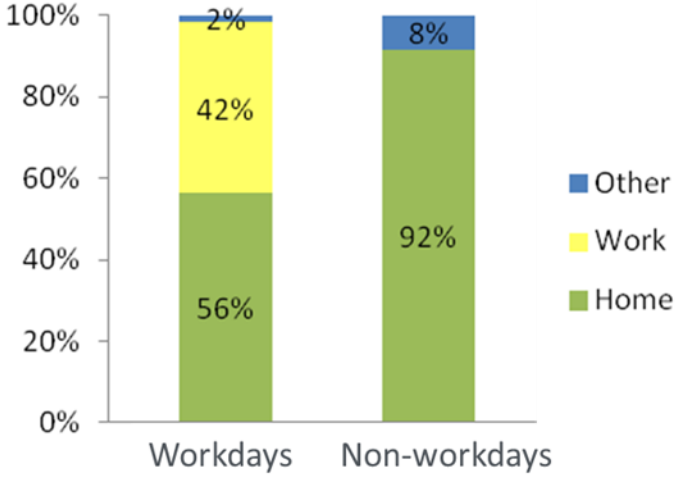
The workplace is **utilized** as prime charging opportunity

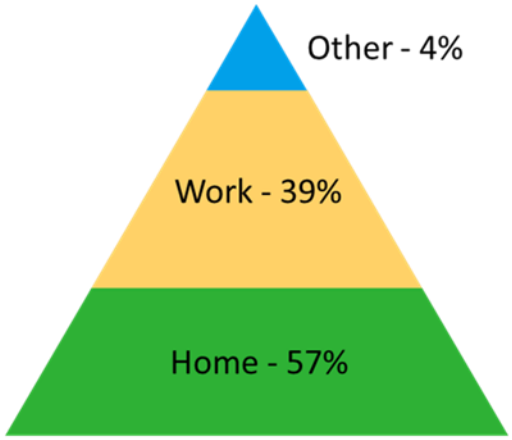
Overall Charging Frequency by Location (to scale)



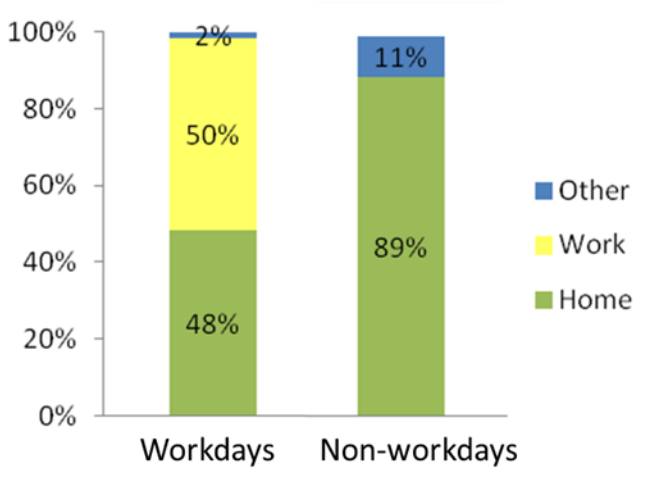
Nissan Leaf

Percent of Charging Events by Location and Day





Chevrolet Volt



Workplace charging benefits employees and employers

Employee Benefits

- Increase range confidence by filling an infrastructure gap
- Increase electric vehicle miles traveled
- Increase PEV awareness and understanding
- Provide a primary charge point for multi-unit/urban dwellers

Employer Benefits

- Incentivize employees
- Complement sustainability efforts
- Signal corporate leadership

Bottom line: workplace charging = more PEVs

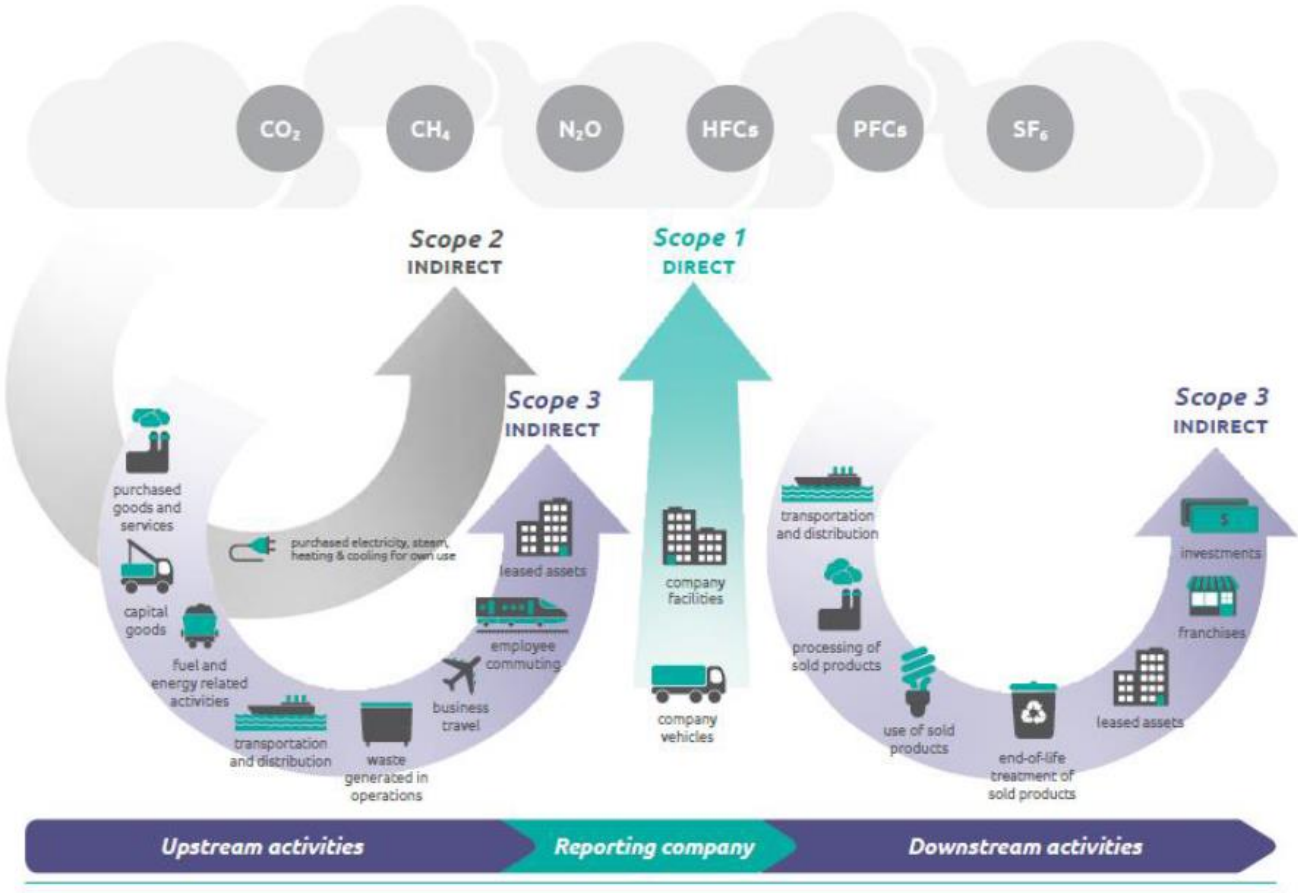
An employee with access to workplace charging is **20x more likely** to drive electric than the average worker.

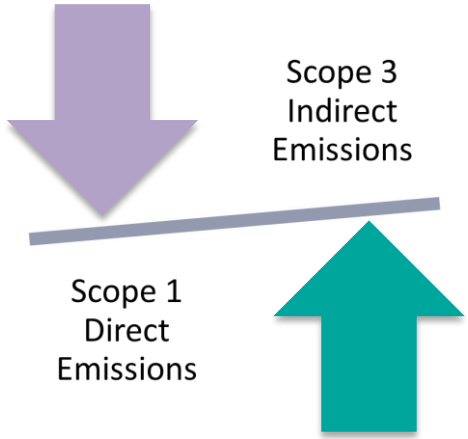

lynda.com

How does the goals of workplace charging fit with the goals of building efficiency?

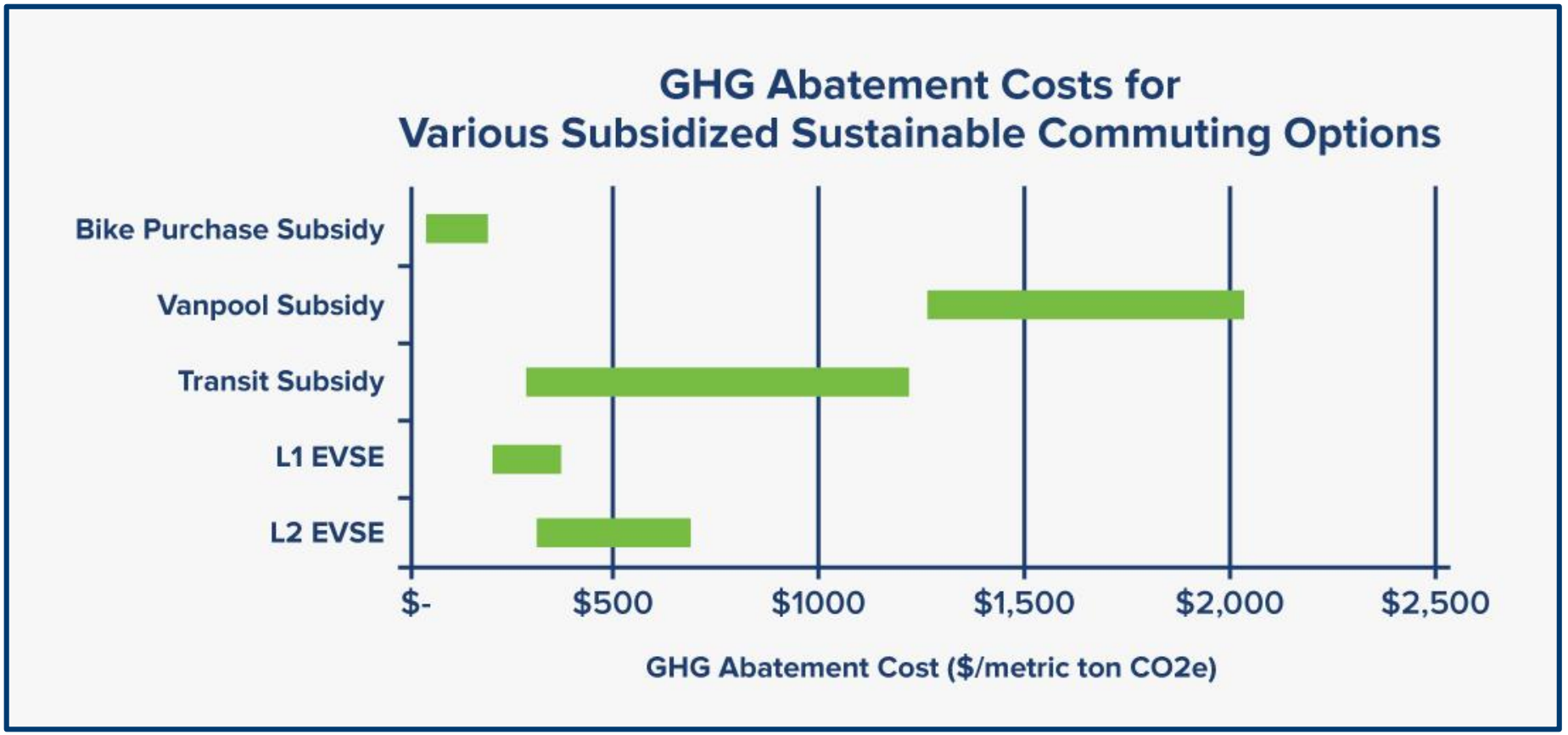
Does workplace charging increase the energy efficiency of my building?

Where does workplace charging fit in GHG accounting?

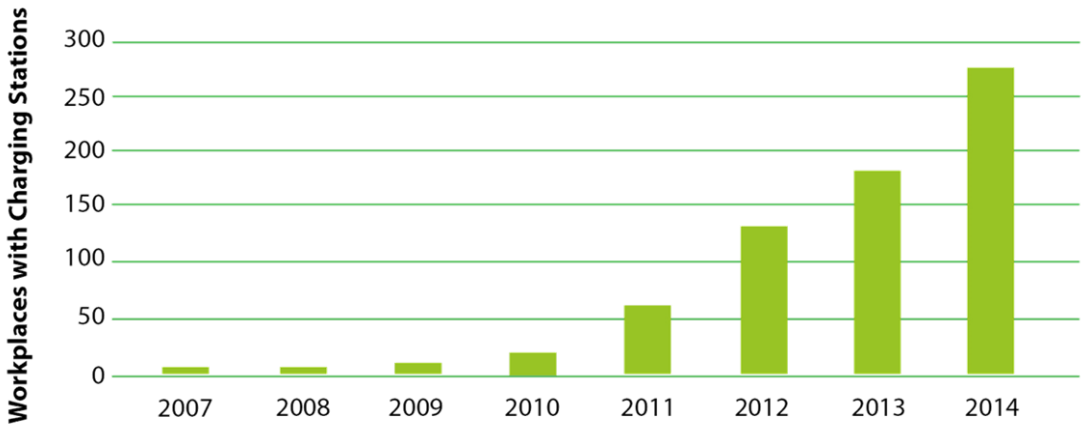


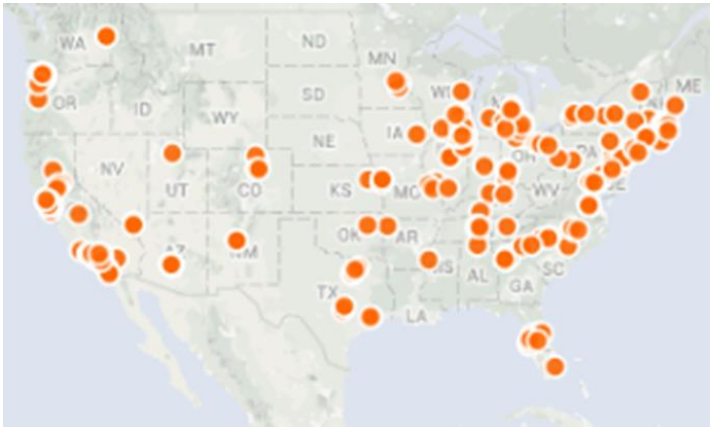


How does workplace charging compare to other ways of reducing GHG from employee commutes?



Goal: Increase the number of employers offering charging by tenfold by 2018 (500 partners)





195+ Partner employers committing to provide employee EVSE

3,500+ EVSE installed or planned

350+ Worksites

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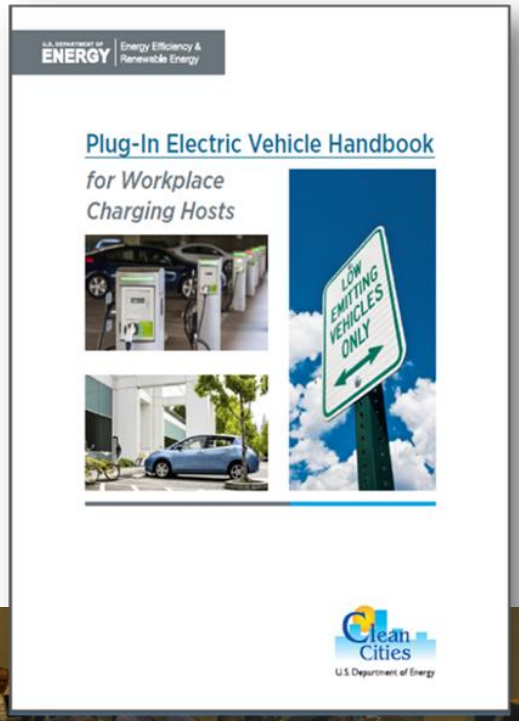
Snapshot of 195+ partners

Join the Workplace Charging Challenge at *electricvehicles.energy.gov*

DOE provides tech assistance, best-practice sharing forum & recognition



- Employer Resources
- Employee Outreach Toolkit
- Webinars
- Workshops
- Quarterly Newsletters
- One-on-One Technical Assistance

Key Resource Highlights

www.electricvehicles.energy.gov

Install & Manage Workplace Charging

- ✓ Assess demand with sample employee survey
- ✓ EVSE incentive database and equipment guides
- ✓ Sample Request for Proposal
- ✓ Workplace-focused guidance on ADA and signage
- ✓ Employer-informed resources on program administration, registration, liability, pricing and station-sharing policy

Promote Workplace Charging

- ✓ Employee outreach toolkit
- ✓ Workplace Ride & Drive guide
- ✓ Vehicle cost and emissions calculators and Find a Car tool

Sarah Olexsak sarah.olexsak@ee.doe.gov

Learn More: www.electricvehicles.energy.gov

Plug-in Vehicle Charging at VEIC

Emily Levin
Manager, Consulting
elevin@veic.org

Vermont Energy Investment Corporation

About VEIC

- Mission driven non-profit
- Energy efficiency & renewable energy programs
- 350+ employees
- Locations: VT, DC, NJ, OH
- www.veic.org

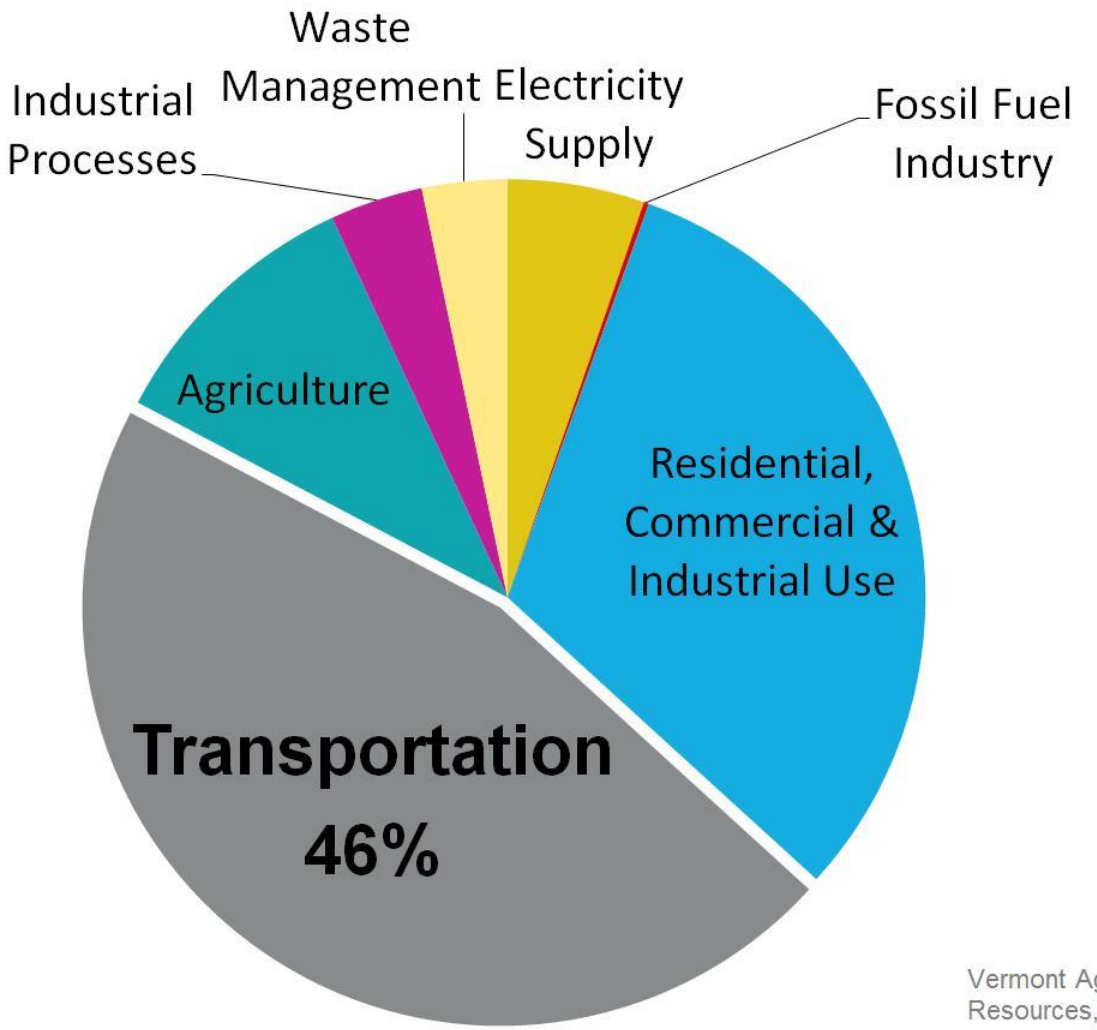
Efficiency Vermont

EFFICIENCY$MART

DC SUSTAINABLE ENERGY UTILITY

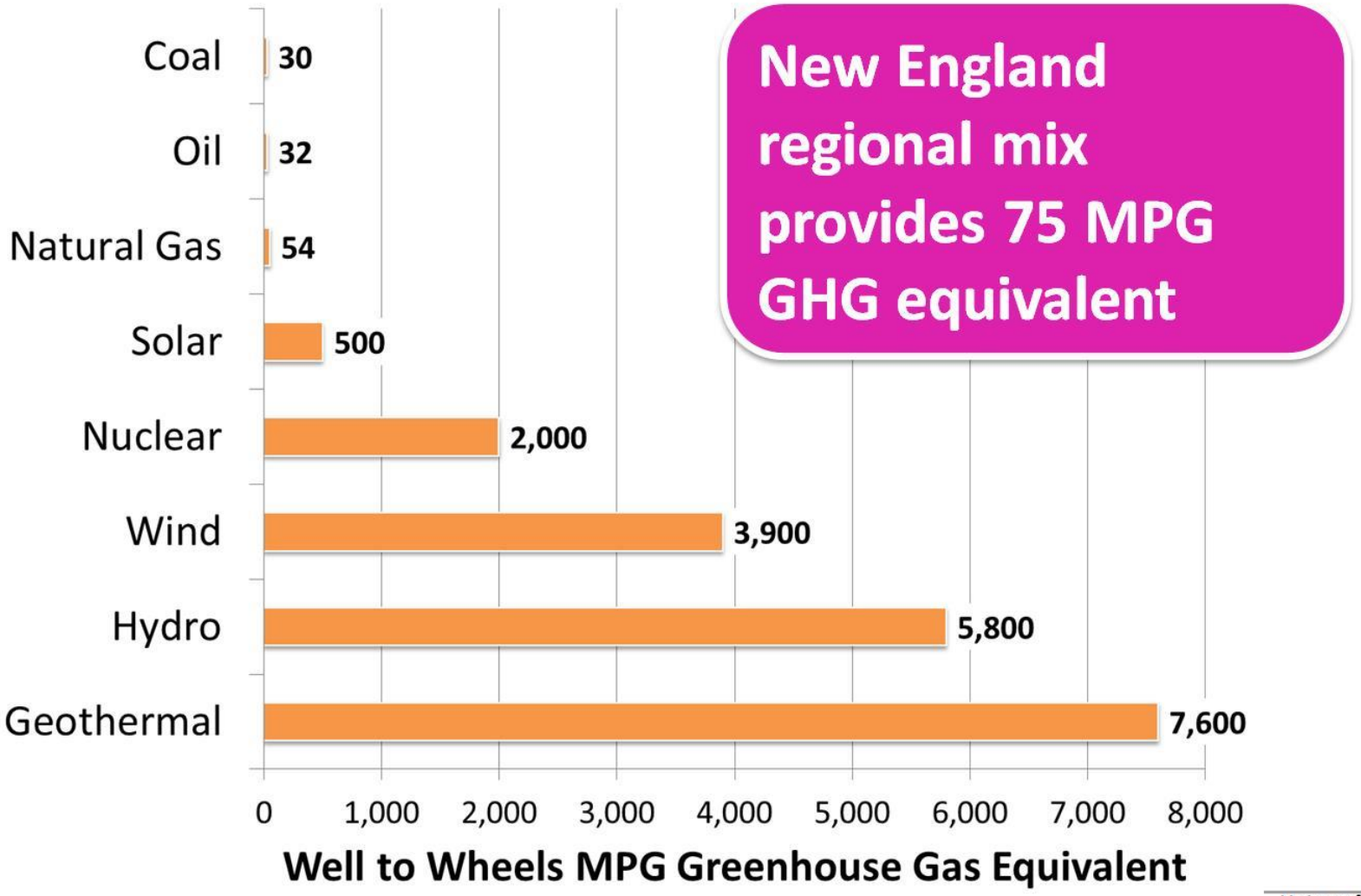
Vermont Energy Investment Corporation

Vermont Greenhouse Gas Emissions



Vermont Agency of Natural Resources, 2013

Electric Vehicle Greenhouse Gas Emissions



Vermont Energy Investment Corporation

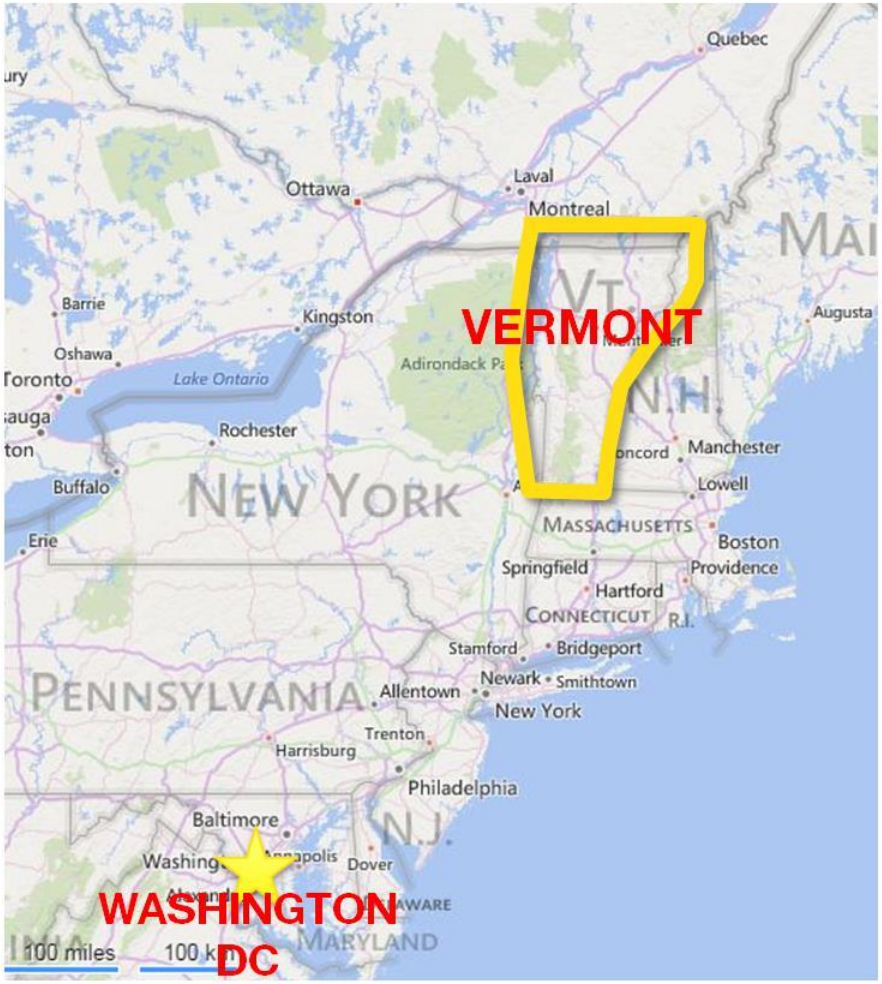
Union of Concerned Scientists, 2012

VEIC Workplace Charging Infrastructure

Why Workplace Charging?

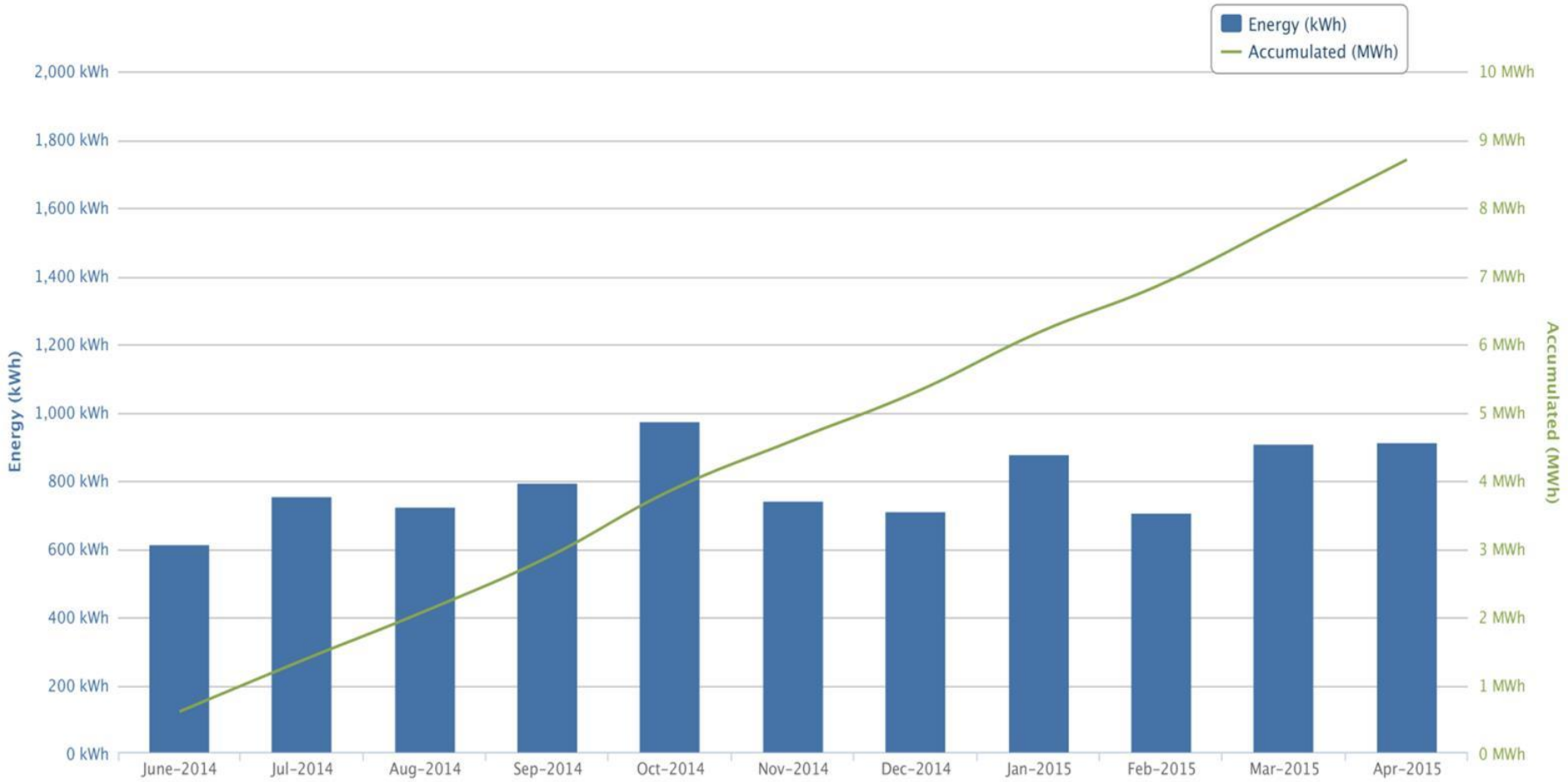
Drive Electric Vermont

A public-private partnership working to increase the use of electrified transportation in Vermont



Procurement and Installation

Use and Management



Promotion


BEN & JERRY'S
SAVE OUR SWIRLED
CLIMATE ACTION NOW!
CLIMATE ACTION NOW!

Discussion

For more information:

David Roberts
Senior Consultant
droberts@veic.org

Workplace Charging Challenge Partner

How to Drive Change with Workplace Charging

Darrel Carter, Real Estate Manager

Sprint Telecommunications

Highest ranked US Wireless provider, CDP Leadership Index

Third largest US wireless co.

- 55 million customers
- Individual, business, M2M

World HQ Overland Park, KS

- 200 Acre facility
- 3.9M SF office space
- 14 Parking garages
- 15 EV Charging Stations
- 2 Cafeterias
- Campus amenities

>30,000 employees nationwide

>2,000 Facilities managed by SRE

- Commercial, Retail, IT

Commitment to Sustainability

Corporate goals provide framework for EV program

Sprint's 2017 Environmental Goals

Good business, Good corporate citizen

20% of greenhouse gas emissions eliminated

90% of suppliers comply with environmental standards

90% device collection rate or reuse and recycling achieved

100% of Network and IT e-waste sent for reuse of recycle

10% of Sprint's total electricity secured form renewable sources

70% of Sprint devices will meet environmental scorecard criteria

30% reduction of operational waste sent to landfills

40% reduction in paper purchased

Sprint is dedicated to helping our employees select greener forms of commuting to work by encouraging the use of alternative transportation including;

- Carpooling
- Mass transit
- Biking and walking
- Hybrid or electric vehicles

Sprint's EV Charging Program

15 dual port EV stations
30+ EV drivers per month
Averaging 300 charges per month

Why Workplace Charging?

Change often starts from the top.

That's why Sprint publicly advocates for strong climate policies and renewable energy expansion in high profile forums.

Announcement Feb. 2014, NASCAR Sprint Broadband Technology Partner with ChargePoint for M2M support

Sprint's Program Participation and Awards:

workplace chargingchallenge
U.S. DEPARTMENT OF ENERGY

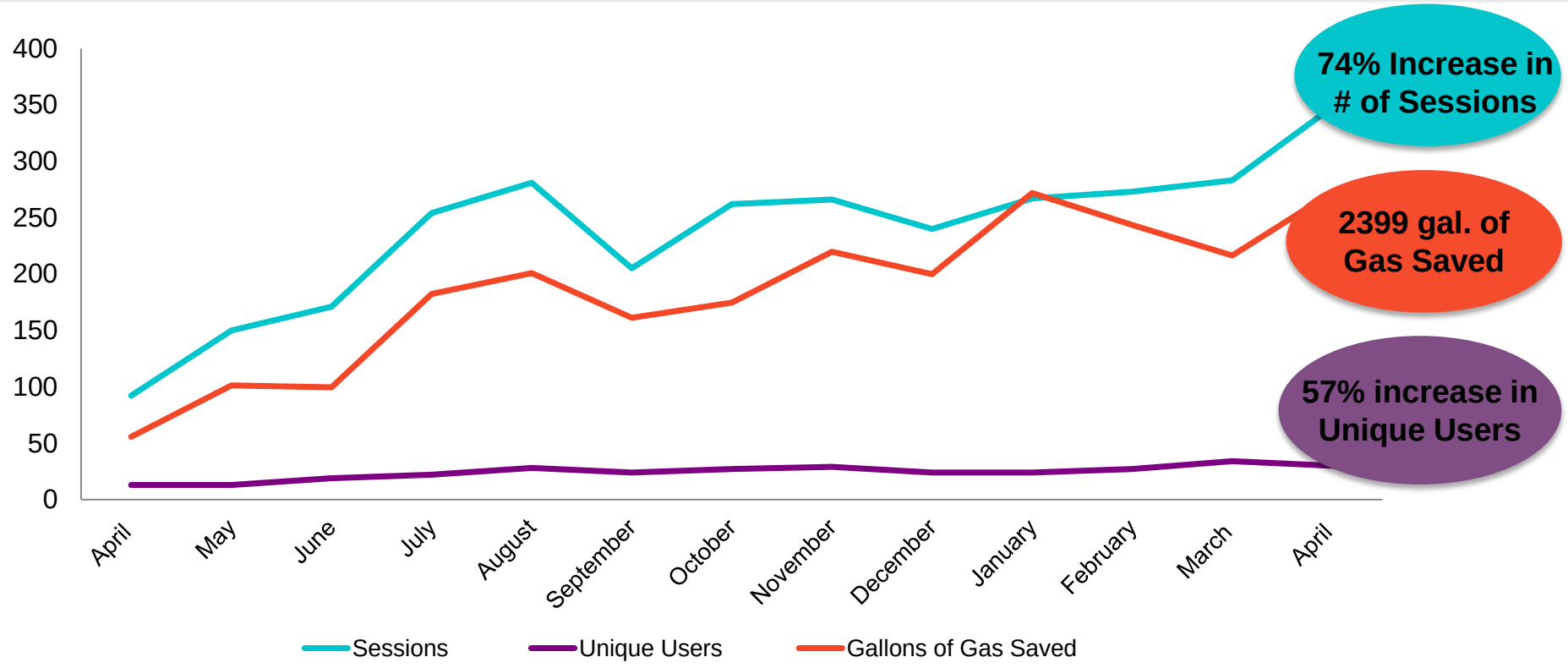
- DOE Better Buildings Challenge
- DOE Workplace Charging Challenge
- USGBC LEED
- Carbon Disclosure Project
- Global Reporting Initiative
- Dow Jones Sustainability Index
- Newsweek Magazine Green Rankings
- EPA Electronics Recycling
- EPA Waste Wise
- Energy Star Portfolio Manager

Dow Jones Sustainability Indexes

Newsweek GREEN RANKINGS 2012

Goals, milestones

Were goals set/met? Biggest challenges encountered?



Goals: Following CEO directive

Challenges: Communication for program growth

April 2013		**April 2014**	
Sessions:	**92**	Sessions:	**348**
Unique Users:	**13**	Unique Users:	**30**

Procurement & Installation

Funded by Sprint Real Estate* – Building Operations
CBRE Managed vendor installation

Opportunities

- Sprint backhaul
- KCP&L rebate

Challenges

- Federal ADA guidelines
- Funding for expansion

**4 units funded by local utility company*

Management & Policy

Sprint + ChargePoint model is flexible, adaptive

All stations are open, free and visible on CP portal

Users can sign up for text alerts via ChargePoint

Future models may use incentivized pricing

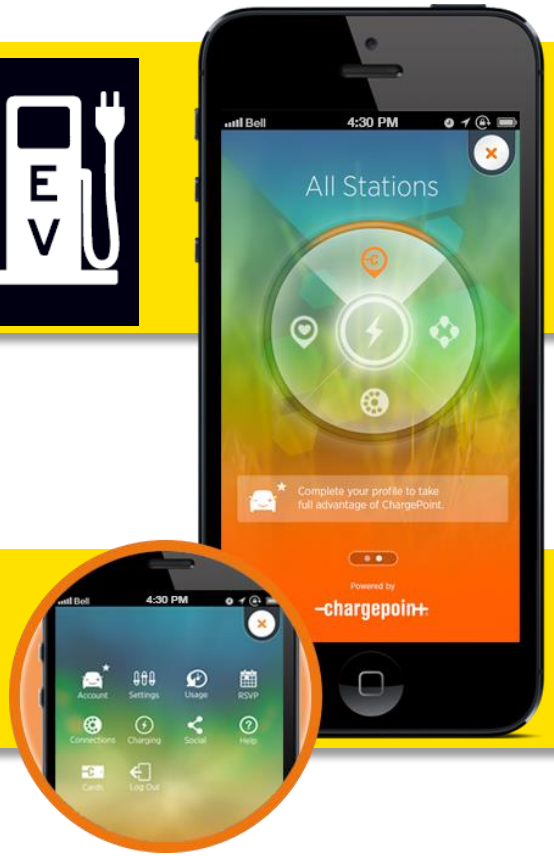
EV Etiquette using QR Code delivery

Promotion of Program

Build it and they will come. Fingers crossed.

Employee communication:

- Door fliers, lobby monitors
- Intranet article
- Sprint iCommute web site
- Ride-n-Drive TBD



External recognition

- KC Regional Clean Cities panel member
- Today's invitation – thank you!

Future Plans/Results

Will Sprint expand availability at more locations?

Sprint continues to provide leadership in environmental sustainability

EV Charging Program Expansion:

A 25 point evaluation matrix was developed to help determine the feasibility of Sprint's EV program expansion.

Matrix criteria includes:

- Head Count
- Lease vs. owned facility
- Employee demand
- EV sales volume
- Access to power supply

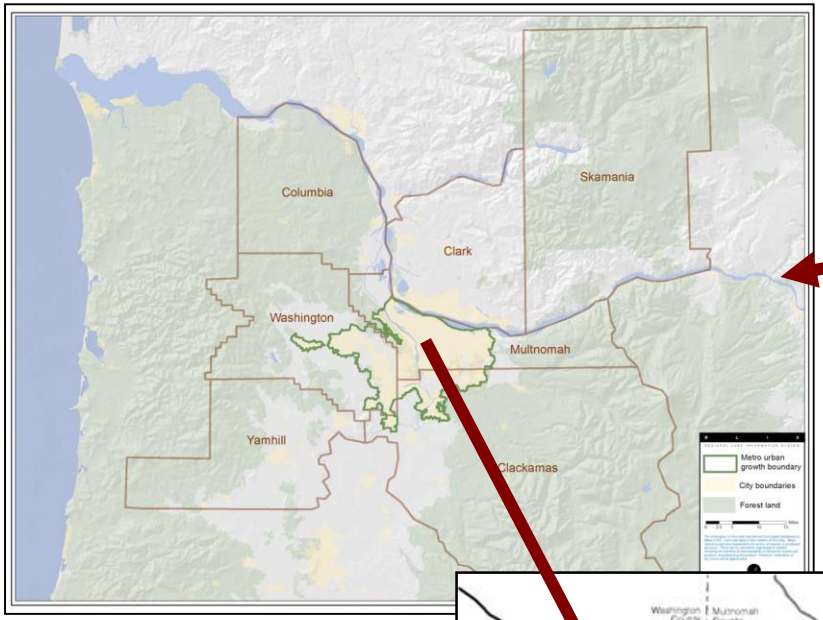
Driving Change with Workplace Charging

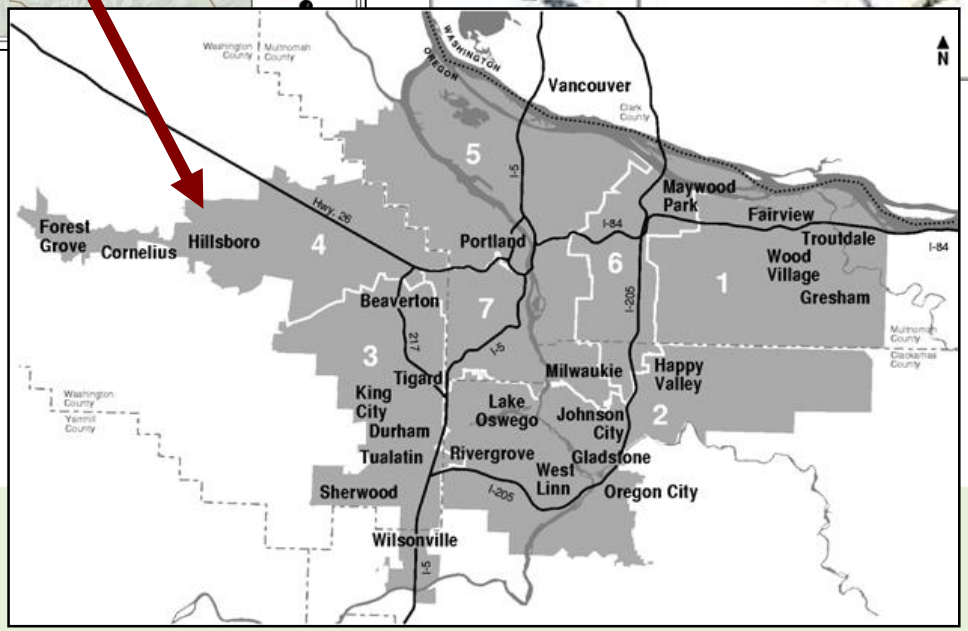
Better Buildings Conference May 28, 2015

Peter Brandom, Senior Project Manager

Hillsboro OREGON

Hillsboro, Oregon





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Hillsboro OREGON

City of Hillsboro Overview

- 13 departments
- 800 employees
- 60 facilities
- 400 vehicles
- 4,000 streetlights
- 30 City-maintained traffic intersections
- Water treatment and distribution

- ❖ 565,722 total sq ft
- ❖ 475,000 sq ft in BBC
- ❖ 200+ kW on-site renewables
- ❖ 35 City-installed electric vehicle charging stations

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Hillsboro OREGON

2030 Sustainability Goals – City Operations

Materials management:

• Achieve a rate of construction material consumption that meets internal standards for sustainability

• 100% of all inputs purchased by the City are sourced from sustainable sources or meet internally established criteria (e.g., zero waste, zero toxins) where technologically and financially feasible

• Zero toxic emissions

• 100% recycling of waste from City operations

• Zero construction and maintenance waste (no waste from construction and maintenance activities is sent to landfill). May be accomplished via public/private partnerships

Policy:

• 100% of City development investments meet a standard set for sustainable development, and City promotes and encourages sustainable development by others

• 100% of applicable City policies incorporate the principles of sustainability

• All city facilities constructed or renovated shall meet current Leadership in Energy and Environmental Design (LEED) standards or equivalent, unless cost prohibitive based on Return on Investment (ROI) or cost/benefit

Energy and air quality:

• 60% reduced City facility energy consumption per square foot (2007 baseline)

• 100% of electricity and natural gas sourced from renewable sources for City facilities and exterior lighting infrastructure

• 80% reduction in greenhouse gas emissions; 100% of remaining emissions offset (2007 baseline)

• 80% production of energy for City facilities from renewable energy sources

• 100% fossil fuel-free staff vehicles and 40% reduction for other exempt vehicles (non-passenger emergency response, etc.) [Based on available technologies and cost effectiveness] (2007 baseline)

• All City facilities zero net energy consumption, if feasible based on Return on Investment (ROI) or cost/benefit analysis

Natural Resources:

• 25% reduction in water consumption by City facilities against established baseline (including re-use and other measures) (2007 baseline)

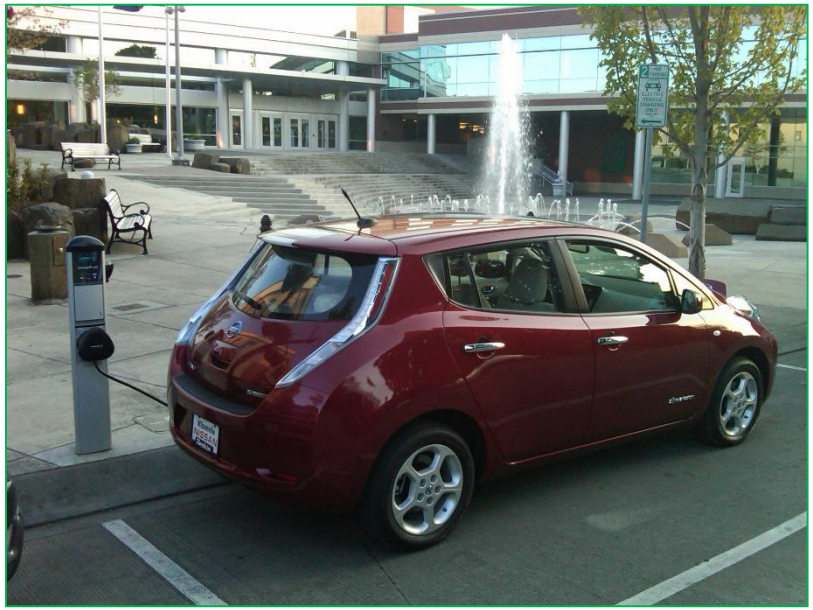
Hillsboro OREGON

History – EVs in Hillsboro

- First private employer stations installed ~2008
- First City-installed unit 2009
- 17 City units by 2011
- 35 City units 2014 (5 fleet)
- ~50 City-wide public units, including 4 DCFCs
- ½ Coulomb, ½ Blink/other

Hillsboro Workplace Charging

- Demand still low, <5 employees
- More vehicle options every day



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Hillsboro Workplace Charging

- More vehicle options every day

Workplace Charging Challenge
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Hillsboro OREGON

Workplace Charging Evolution

- Invited to join Workplace Charging Challenge
- Additional capacity and policy decisions already in process
- Looking toward future needs, driving EV adoption
- City EVs helping to generate interest, provide experience to employees

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Hillsboro OREGON

Workplace Charging Evolution

- Estimate for employee lot completed
- General policy identified

Workplace Charging Evolution

- Given current demand, not immediate need for new units
- Will develop additional capacity when needed

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Hillsboro OREGON

Thank You

"The City of Hillsboro envisions a sustainable future, in which the City responsibly satisfies the needs of its citizens, provides a healthy and satisfying work environment for its employees and minimizes its impact on the physical environment of the community"

peter.brandom@hillsboro-oregon.gov

hillsboro-oregon.gov/sustainability

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