



Higher Education PEV Charging Webinar

March 10, 2016

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U.S. DOE Workplace Charging Challenge

Goal: 500 U.S. employers committed to employee charging by 2018



- 275 Partner employers committed to provide charging at...
- 600+ Worksites where employees have access to...
- 5,500+ Installed or planned charging stations

Join today! Email WorkplaceCharging@ee.doe.gov

Voluntary Model to Promote & Support Charging

DOE Support

- Provide technical assistance
- Recognize success
- Convene employer network

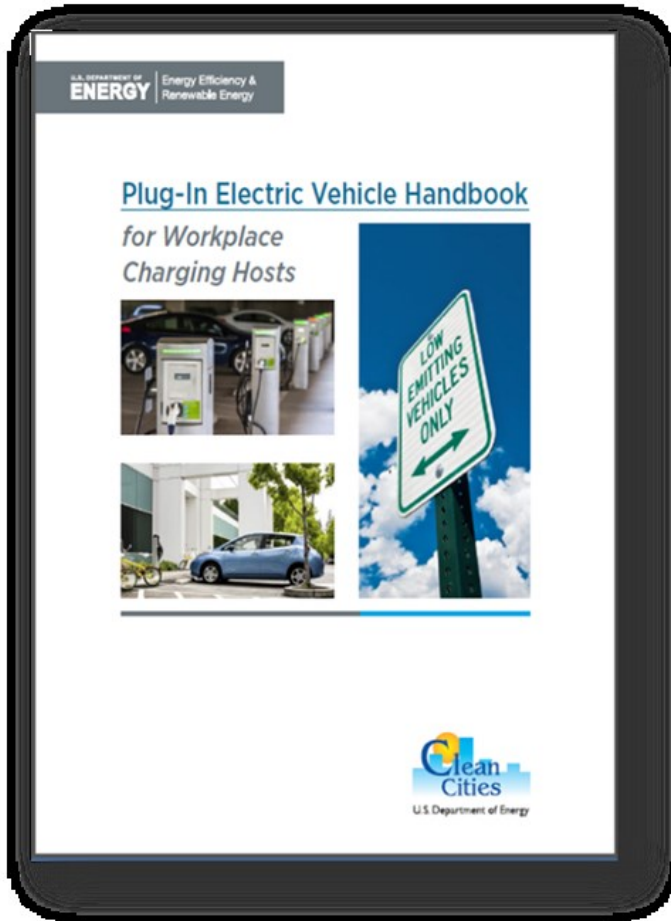
Partner Actions

- Pledge commitment to employee charging
- Communicate by announcing Challenge pledge and posting a profile to DOE website
- Share workplace charging plan and provide updates by responding to annual survey

Join today! Email WorkplaceCharging@ee.doe.gov



How is DOE providing technical assistance?



- EV 101
- Employer Resources
- Employee Outreach Toolkit
- Case Studies
- Webinars
- Workshops
- Quarterly Newsletters
- One-on-One Technical Assistance

<http://energy.gov/eere/vehicles/ev-everywhere-workplace-charging-challenge>

Join today! Email WorkplaceCharging@ee.doe.gov

EV EVERYWHERE WORKPLACE CHARGING CHALLENGE

- Vehicles Home
- About the Vehicle Technologies Office
- Plug-in Electric Vehicles & Batteries
 - Batteries
 - Electric Drive Systems
 - Workplace Charging Challenge**
 - Join the Challenge
 - Meet Challenge Partners
 - Install Workplace Charging
 - Promote Workplace Charging
 - Efficiency & Assistive Technologies
 - Energy Data
 - Electricity



University Campuses Charge Up

America's higher education institutions are at the forefront of workplace charging.

[READ MORE >](#)



WHY ELECTRIC VEHICLE CHARGING AT WORK

Many PEV drivers charge their vehicles primarily at home, but accessing chargers at work can help owners double their vehicles' all-electric daily commuting range. To increase the

SUCCESS STORIES

- MARCH 10, 2015
[Workplace Charging Success: Zappos.com](#)
- OCTOBER 2, 2014
[Workplace Charging Success: MetLife](#)
- OCTOBER 2, 2014
[Workplace Charging Success: lynda.com](#)

Take the Pledge
Join the Challenge

MEET CHALLENGE PARTNERS



Top Reasons for PEV Charging in Higher Education

Reduce commuter emissions

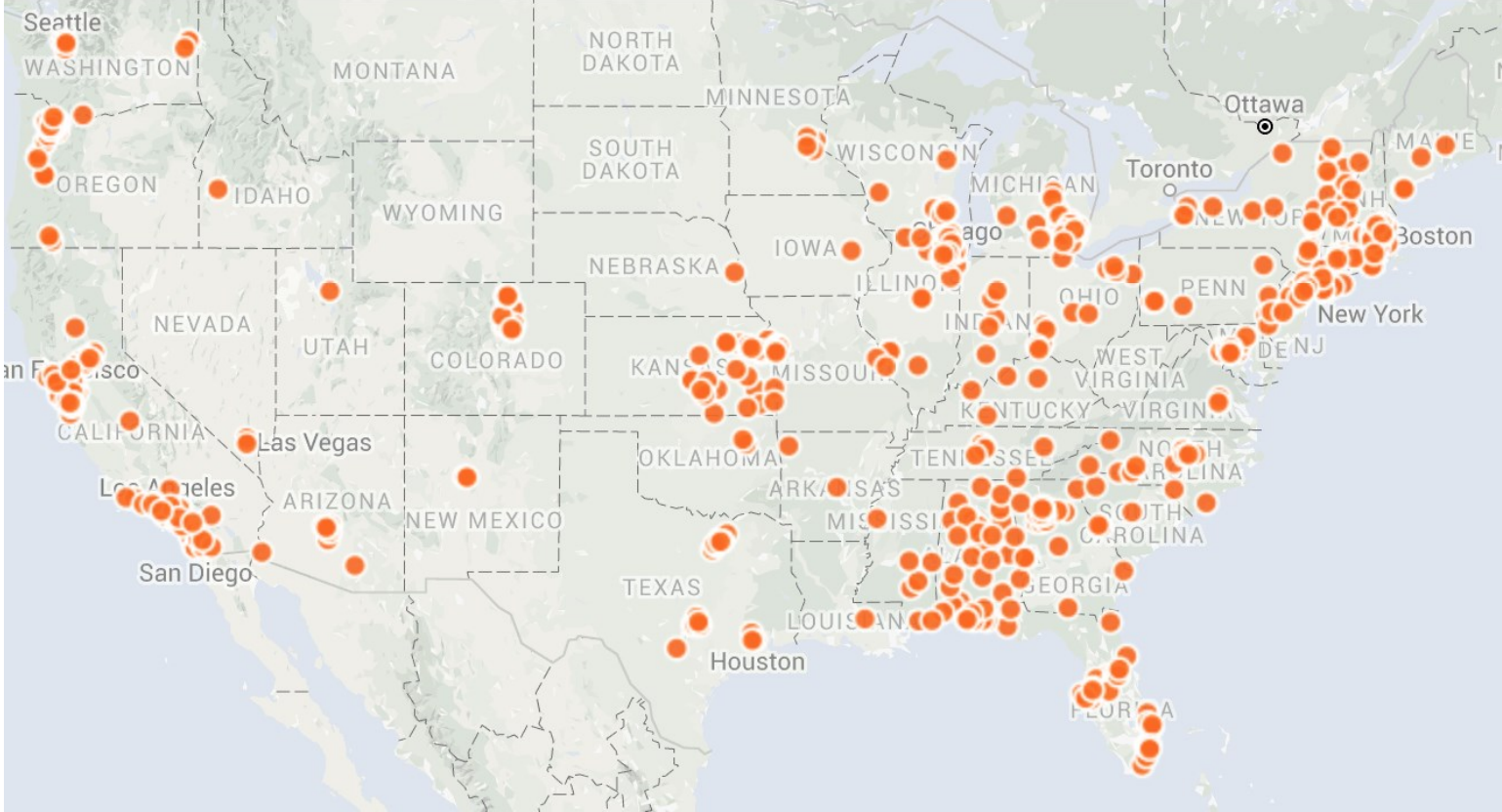
Provide research opportunities

Enable fleet charging

Signal environmental leadership

Provide employee and student benefit

Higher Education Workplace Charging Success



52 Higher Education Partners!

Higher Education PEV Charging Webinar Speakers



Nicholas Palumbo, Suffolk
County Community College

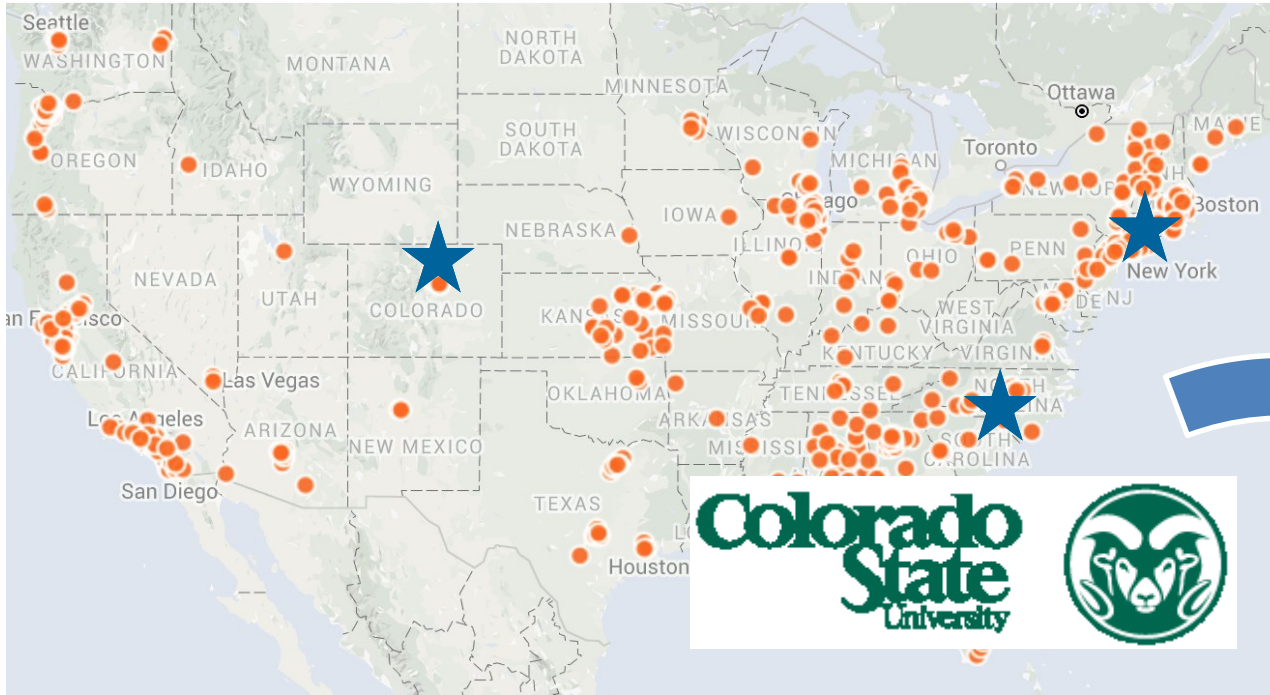


Jay Blausler, University of
North Carolina at Pembroke



Aaron Fodge, Colorado
State University

Today's Discussion Format



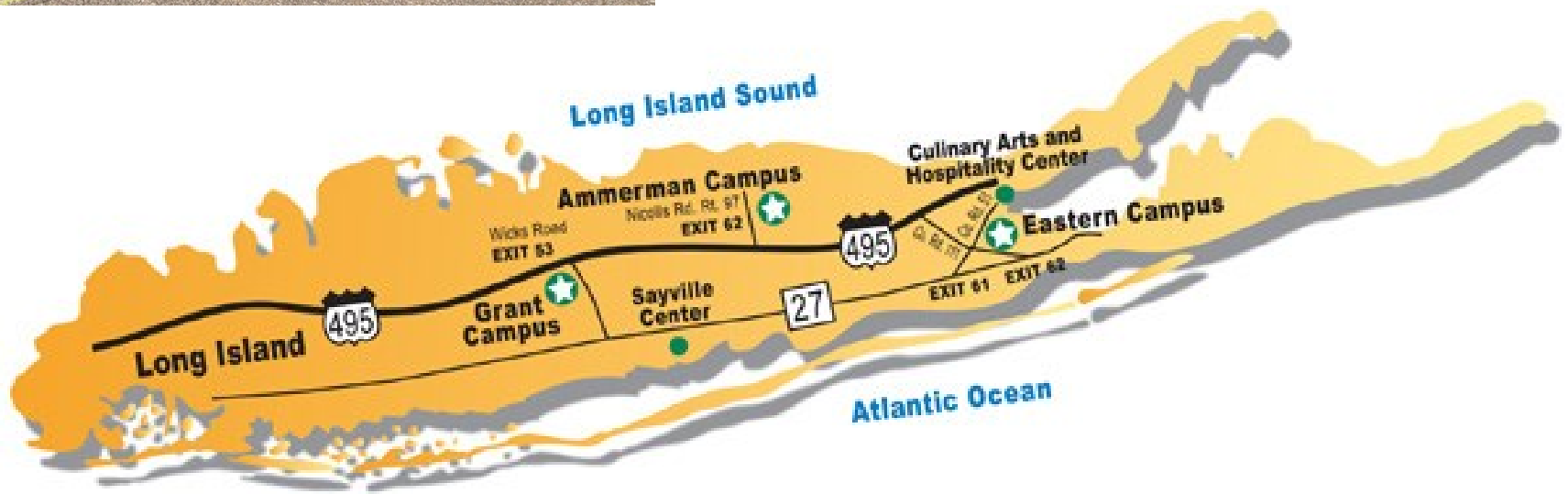
UNIVERSITY of NORTH CAROLINA
PEMBROKE





Suffolk

COUNTY COMMUNITY COLLEGE



Sustainability at SCCC

A holistic approach to identifying best practices across the institution for improving our campus environments, reducing negative impacts on the planet, and operating at maximum efficiency.

7 Dimensions of Sustainability

(from University Leaders for a Sustainable Future)

Institutional Mission, Structure & Planning

Faculty & Staff Development & Rewards

Student Opportunities

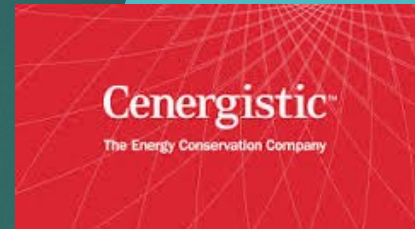
Curriculum

Operations

Community Outreach & Service

Research & Scholarship

CURRENT MAJOR INITIATIVES



Electric Vehicle Charging Stations

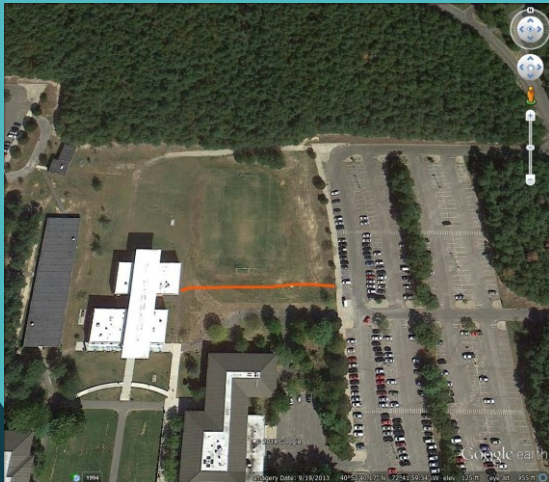
- ▶ 6 Dual Port Leviton Level 2 EVCS's, connected to the Chargepoint network. Two at each campus.
- ▶ Made possible by NYSERDA grant which funded the bulk of the cost.
 - ▶ \$107,286 total
 - ▶ NYSERDA: \$63,294
 - ▶ SCCC: \$43,992
- ▶ No formal study undertaken prior to assess demand. Occasional inquiries to Office of Sustainability. Program aim to encourage adoption. "If you build it, they will come." model.
- ▶ First stations came on line Earth Day 2014.



Installation Considerations

- ▶ Driven primarily by cost = Distance to nearest electrical service (40A/220V). Not ideal location in all instances.
- ▶ Chargepoint network (web based management tool) invaluable resource for monitoring usage. Real-time analytics, billing service option, mobile app for EV drivers – charge status, etc.
- ▶ Chargepoint network also makes resource available to public. Limited time of day/week access. Important to note on network & alert staff.

Eastern Campus



Grant Campus



Ammerman Campus

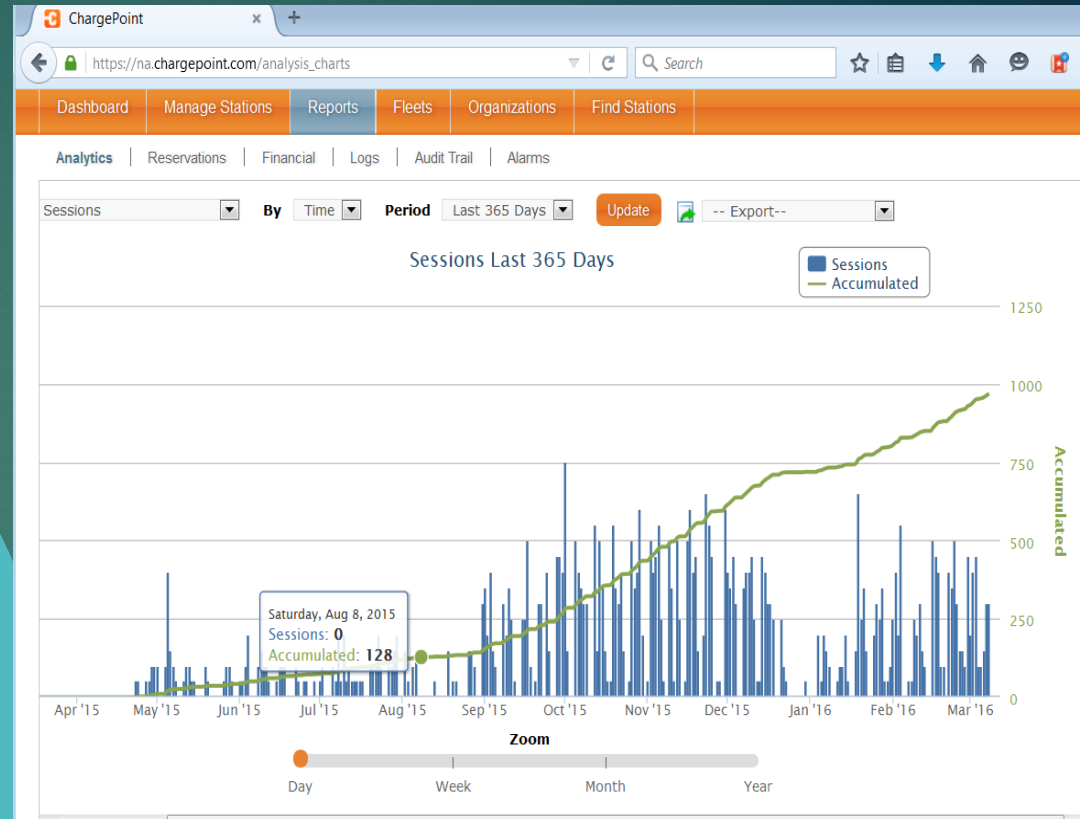


EVCS Management Policy

- ▶ Use Policy still very much evolving.
 - ▶ Recommendations submitted, not yet formally approved.
 - ▶ Utilization patterns will probably influence some decision points.
- ▶ Currently free for all users (registered through Chargepoint).
 - ▶ Total cost of electricity to the college under \$500 to date.
- ▶ Administered by Office of Sustainability. Chargepoint is a big plus.
- ▶ Enforcement by Public Safety – informal notice.
 - ▶ Parking is a challenge at all campuses.

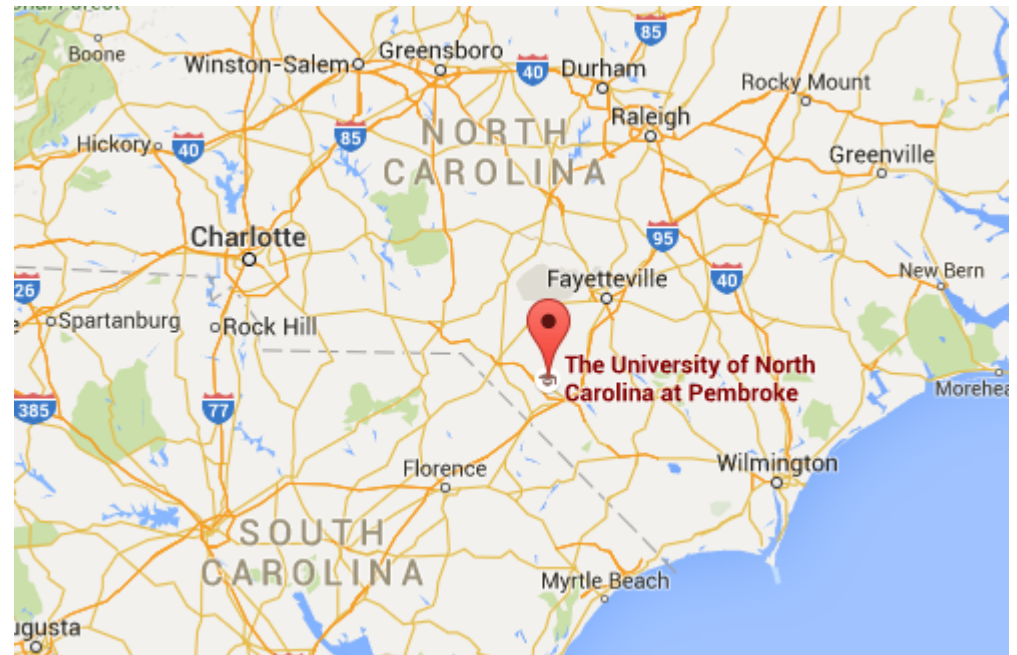
Impact to Date

- ▶ 2,282 Kg. avoided Greenhouse Gas Emissions
- ▶ 831 Gallons of gasoline saved
- ▶ 967 total charges
 - ▶ Only 30 Unique drivers, but the trend is up ↑.
 - ▶ We **are** influencing change.





UNIVERSITY *of* NORTH CAROLINA PEMBROKE



Sustainability Mission




The University of North Carolina at Pembroke (UNCP), founded in 1887 as a school for the education of American Indians has always prepared students to be responsible stewards of the world.

Furthermore, UNCP is committed to minimizing its global-warming emissions, while providing educated graduates needed to lead the changes necessary to resolve the world's social, environmental and economic issues; in doing so, positioning itself as a regional leader and model for sustainability, academically and operationally.

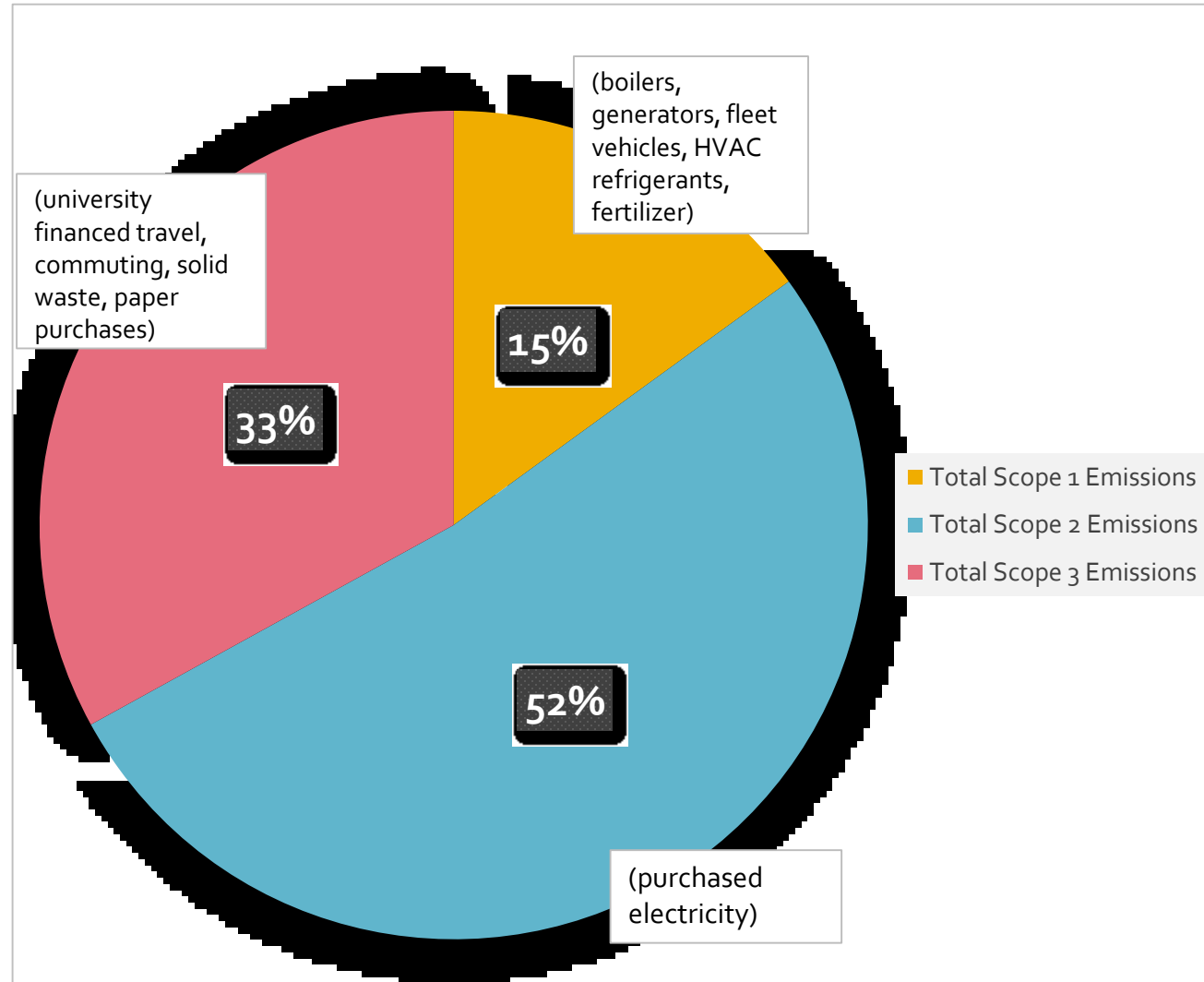
Why PEV Charging?

GHG emissions reduction strategy

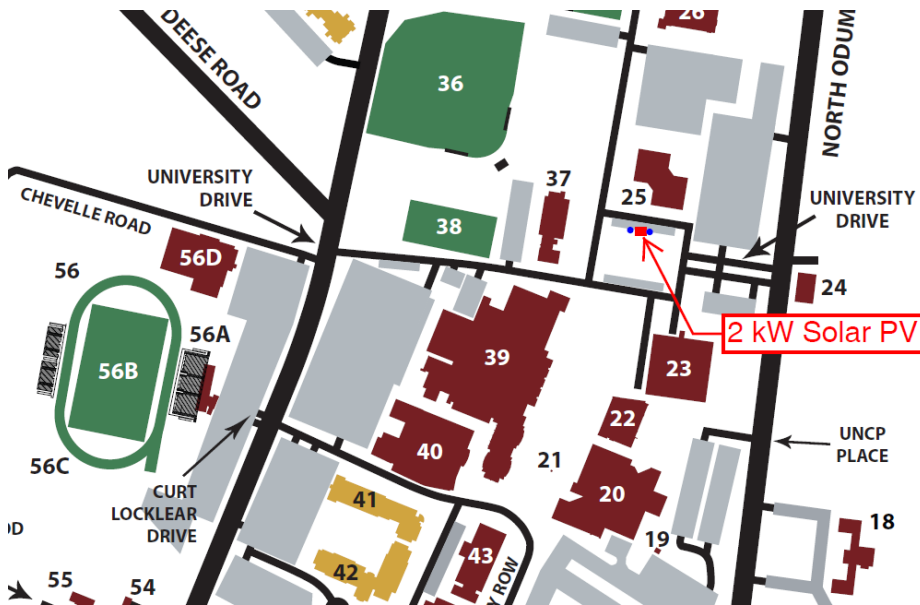
2013:  23,211 metric tons of CO₂E

2014: 22,853 metric tons of CO₂E

1.5% less



Siting, Type, etc.



- Centrally located, visitor parking lot which is accessible to students, faculty, staff and visitors
- State term contract 691A: Electric Vehicle Charging Station Equipment



www.uncp.edu/sustainability



Program Management



Workplace Charging Challenge Partner Plan

December 31, 2014

Fast Facts

- 4 charging stations (1 for every 2 PEVs)
- Level 2 (3 hours)
- Free for users
- Move after charged
- Register with the Sustainability Office
- Carbon neutral b/c solar PV
- UNCP is a "Partner" with US DOE's Workplace Charging Challenge

<http://energy.gov/eere/vehicles/ev-everywhere-workplace-charging-challenge>

I. Background

On June 23, 2014, UNC Pembroke became a Partner in the U.S. Department of Energy's Workplace Charging Challenge and was the first university in North Carolina to do so! This effort to make plug-in electric vehicle (PEV) charging stations available to students and employees in the workplace supports the campus' Sustainability Plan. This program is one of the transportation initiatives designed to reduce greenhouse gas emissions generated from commuting.

II. Goals and Progress

The main campus' first two PEV charging stations were installed in Parking Lot 17 (visitor's lot), at the Dial Building and Lumbee Hall. These PEV stations were unveiled on December 11, 2014 with a brief ribbon-cutting ceremony. The campus goal for this Partner Plan is to provide one level II PEV charging station for every two PEVs owned by students and employees. This program is contributing towards the campus' long-range goal to become carbon neutral by the year 2050.

III. Charging Demand Assessment

Initial demand was assessed by an electronic survey sent to all students and employees in 2014. During this survey, it was reported that seven PEVs were owned by the over 7,000 campus students and employees. At least two more stations are pending installation in 2015 to meet this latest demand. PEV ownership and desire to have access to charging stations will be assessed annually. Results and reported demand will be monitored and recommended for approval to provide one station for every two PEVs, budget permitting. Usage rates of the charging stations will also be monitored.

IV. Charging Management and Policy

Signage was and will continue to be installed that should be sufficient for users to understand, follow and allow usage and daily operation of the stations to be self-regulating. The stations are available to any PEV driver allowed to park in a designated lot (i.e. anyone in a visitor's lot, staff and faculty within those lots, etc.). Stations are free of charge and available for use at all times. The Sustainability Office serves as the point of contact with coordination and management responsibilities for this program. Support will also be provided by Campus Police and Public Safety, Facilities Management, University Communications and Marketing as well as other departments as needed.

V. Charging Station Procurement and Installation

State and campus purchasing and construction contracting policies guided procurement and installation of the first two stations. This is the standard that will continue to be followed, as well as Master Plan coordination regarding site locations. In more detail, the first stations included: Eaton chargers purchased, per State Term Contract for electric vehicle supply equipment. A local, licensed electrical contractor was selected for installation after becoming the successful low bidder. A two kilowatt solar photovoltaic array was also installed to offset energy consumed by the stations to create a carbon net-zero installation. This net-zero concept will be employed with future installations as funding permits. A portion of the costs were satisfied with new Sustainability Green Fees. The use of these funds are planned to offset a portion of future procurement and installation costs.

VI. For More Information:

Visit the Sustainability Office website at www.uncp.edu/sustainability. Presentations have been made available to new students and employees during orientations and Freshman Seminars. Press releases and other communiqué have and will continue to be published and disseminated to the campus, stakeholders and the public.

Engagement and Education



2015 National Drive Electric Week (Sept 12-20)

- Over 45 attendees
- 13 test drives
- PEV “how to,” then Q&A
- Local sponsors:
 - Advanced Energy
 - Fred Anderson Nissan
 - Dieffenbach GM Superstore
- National hosts:
 - Plug In America
 - Sierra Club
 - Electric Auto Association

UNC Pembroke – Sustainability Office

910.521.6509

jay.blauser@uncp.edu

www.uncp.edu/sustainability

Colorado
State
University



First institution in the world to achieve STARS Platinum

2015

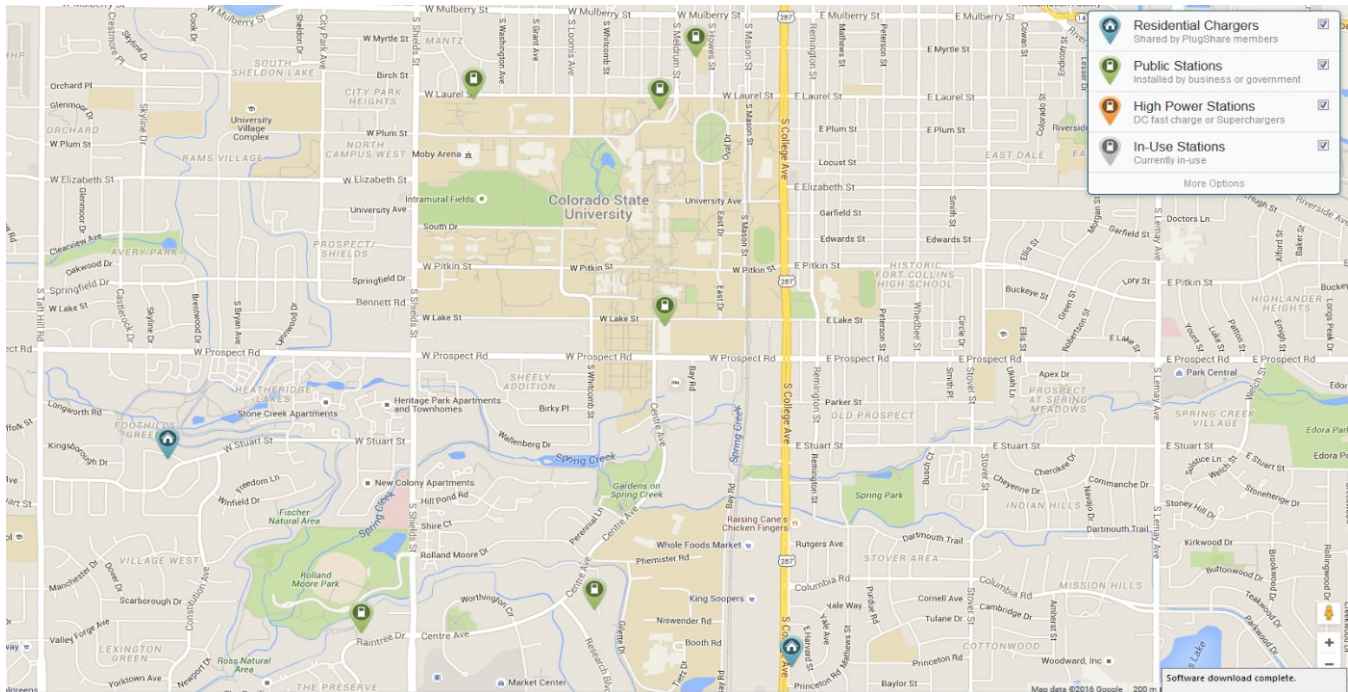
AWARDS *and* ACCOLADES



STATE *of* SUSTAINABILITY



Charger Placement Strategy



REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

The Opportunity of New Construction

- Pull Conduit for Future EV Charger
- Site Departmental EV Fleet Vehicle



DRAFT August 12, 2015



Grant Funding for Chargers and EVs

	RAQC	CEO
Funding	Electric vehicles (EV) and Electric Vehicle Supply Equipment (EVSE) – Level 2 and Level 3	Electric Vehicle Supply Equipment (EVSE) – Level 2 and Level 3
Eligible Fleets	Fleets and entities located in the seven county Denver Metro Area (Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas or Jefferson Counties).	Entities located in Colorado outside of the seven county Denver Metro Area.
EV Funding Available	RAQC will fund 80% of the incremental cost differential between an EV and the comparable gasoline vehicle up to \$8,260.	CEO is not funding EVs.
EVSE Funding Available	RAQC and CEO will fund 80% of the cost of an EVSE up to the following set maximums: <ul style="list-style-type: none"> Level 2, Single Port Station: \$3,260 Level 2, Multi-Port Station: \$6,260 Level 3, Single Connection Standard Station: \$13,000 Level 3, Multiple Connection Standard Station: \$16,000 Please see the Application Guide for more information on EVSE Type.	
Funding Priority	Priority is directed to those organizations that are excluded from existing state tax credits and incentives. For both EVSE and EV funding, eligible applicants include local governments, school districts, State / Federal agencies, non-profit educational institutions and other non-profit agencies. Apartment / condominium complexes and businesses that own multi-vehicle parking facilities for fleet, public or guest / visitor are also eligible for EVSE funding.	Funding is directed to private non-profit or for-profit corporations, state agencies, public universities, and public transit agencies, in addition to local governments, landlords of multi-family apartment buildings and homeowner associations (as defined more specifically in C.R.S. Article 33.3 of Title 38).



The screenshot shows the Colorado Energy Office website. The navigation menu includes: Energy In Colorado, Energy Efficiency, Transportation, Finance, Weatherization Assistance, and About Us. The 'Transportation' dropdown menu is open, showing options: ALT Fuels Colorado, ReFuel Colorado, Charge Ahead Colorado (highlighted), and Wired Workplace EV Charging Workshop. The main content area features a 'Charge Ahead Colorado' section with an image of a silver car at a charging station. Below the image, text reads: 'In an effort to improve air quality and encourage deployment of electric vehicles across the State of Colorado, the Regional Air Quality Council and the Colorado Energy Office have teamed up to provide financial support for electric vehicles and electric vehicle supply equipment. For more information, go to <http://deanairfleets.org/programs/charge-ahead-colorado>'



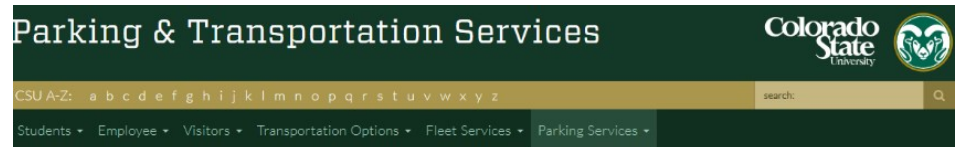
REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

Strategy for EV Parking Permits

1. Not Charging for Electricity (charger capable)
2. Student / Staff must have EV permit (license plate is the permit)
3. Visitors – Chargers placed in hourly and daily permit lots



Electric and LEV Permits

Colorado State University provides parking permit options for electric and low-emission/emitting vehicles.

Low Emission Vehicles (LEV) – LEED Permit

Priority parking spaces designated specifically for low emissions vehicles (LEV) are available in these campus locations:

- Lot 455 along the West side next to Behavioral Sciences.
- Lake Street Garage on the North end of the second and third floors.

To park in LEV permit spaces, your vehicle must qualify and you must have a valid CSU parking permit for the designated permit type. To register the vehicle as an LEV vehicle, visit [Parking and Transportation Services at the Lake Street Garage, first floor office](#).

Who decides what qualifies as a low emissions vehicle?

The vehicle list is compiled by the [American Council for an Energy Efficient Economy](#). This list is also utilized by the US Green Building Council to determine qualifying alternative transportation programs for LEED credit.

For a list of qualifying vehicles please click [HERE](#) for a list of LEED qualified cars from 1998-2015.

Electric Vehicles

CSU is a member of [Drive Electric Northern Colorado](#) and has taken the [Department of Energy's Workplace Charging Challenge](#) pledge to provide to offer 18 electric vehicle chargers at seven on-campus stations ([map of chargers](#)):

- Between Durward Hall and Laurel Village, along Laurel Street.
- Between Scott Bioengineering and Rockwell West.
- At University Services Center on Laurel and Meldrum streets.
- At Powerhouse Energy Campus at 430 N. College Ave.
- At Facilities Services South parking lot on Lake Street and East Drive.
- First floor of the Lake Street Garage at Lake Street between Prospect Road and Center Avenue
- Research Blvd parking lot directly west of the Veterinary Teaching Hospital



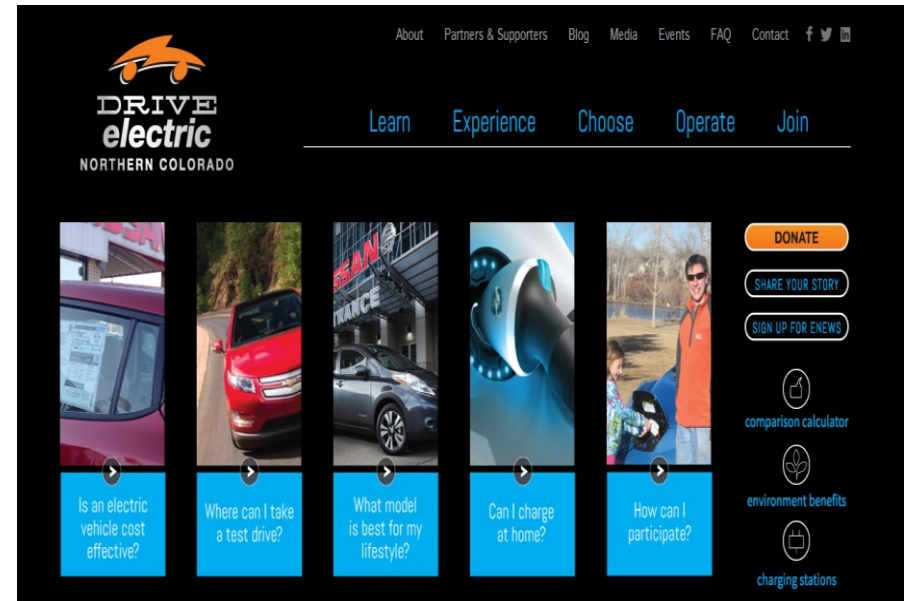
REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

Drive Electric Northern Colorado

- The core partners (2013) in DENC include:
 - Colorado State University
 - City of Fort Collins
 - City of Loveland
 - Electrification Coalition (EC)
- A “living laboratory” --a scalable and replicable model for implementing EV deployment communities
- Collaboration with every level of the EV supply chain including: OEMs, car dealerships, infrastructure providers, universities, state and city governments, utilities, private businesses, non-profits.



REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

Ride and Drives

Targeted events with multiple vehicles to test drive

- Employees
- Students
- Alumni
- Visitors



REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

Student Research

Students at CSU have taken part in programs such as the U.S. Department of Energy's EcoCAR 3 competition, which brings together collegiate engineering teams to reduce the environmental impact of transportation.



U.S. DEPARTMENT OF ENERGY **EcoCAR 3** ADVANCED VEHICLE TECHNOLOGY COMPETITION GM

HOME ABOUT TEAMS SPONSORS MEDIA CENTER GREEN GARAGE BLOG CONTACT

Colorado State University

ABOUT US

- TECHNICAL GOALS
- ARCHITECTURE SELECTION
- TEAM MEMBERS
- TEAM SPONSORS
- TEAM MEDIA CENTER
- GET INVOLVED
- CONTACT

ABOUT US

The Colorado State University Vehicle Innovation Team (CSU VIT) has been involved in AVTCs since 1988 and graduated more than 120 students throughout multiple colleges. CSU is a land-grant institution and a Carnegie Doctoral/Research University.



REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

Testing Ground

CSU was awarded four neighborhood electric vehicle with diagnostics and tracking metrics for employees to use for cross-campus trips.



REINVENTING THE WHEEL

Parking and Transportation Services

Your Guide to Navigating Campus

BUSINESS

Tiny-electric car test a big part of deciphering CSU travel habits

By Howard Pankratz
The Denver Post

POSTED: 06/23/2014 05:39:09 PM MDT | UPDATED: ABOUT A YEAR AGO

[ADD A COMMENT](#)



Colorado State is one of four universities nationwide that will receive four all-electric micro vehicles for research projects. (Courtesy of CSU)

The Innova Dash is tiny — minuscule, even.

But four of the urban electric vehicles will be a big part of understanding the public-transportation habits of Colorado State University employees.

Fleet Conversion

- Determine Demand within range of EVs
- Set Fleet Conversion Goal
 - President's Sustainability Committee
- EV Fleet Vehicles allow:
 - employees to be insured by University when they make work day trips
 - an employee to commute without a personal vehicle
 - Seek dealership maintenance training for staff



Higher Education PEV Charging Webinar Speakers



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Join today! Email WorkplaceCharging@ee.doe.gov



Learn More: WorkplaceCharging@ee.doe.gov

energy.gov/eere/vehicles/ev-everywhere-workplace-charging-challenge

www.electricvehicles.energy.gov

