Resiliency and Sustainability Advisory Committee Meeting

May 19, 2022
Welcome and Moment of Silence

By: Mayor John Tecklenburg, Chairman
Electric Lawn Care Expo
April 30

For event pictures, benefits and resources visit:
charleston-sc.gov/Electric-Lawn-Care
Data & Analysis on Compost Program

charleston-sc.gov/compost

By: Katie McKain,
Director of Sustainability
The compost program directly implements Climate Action Plan

Organic materials sent to a landfill break down without oxygen resulting in release of methane, a greenhouse gas 25 times more potent than CO$_2$.

Organics are largest part of waste stream
COMPOST YOUR FOOD SCRAPS!
SIGN UP TODAY!

City of Charleston residents can take their food scraps to designated drop sites for composting. This service is **FREE**. Drop-off locations include:

- **Ackerman Park** (West Ashley)
  Including West Ashley Farmers Market
- **Corrine Jones Park** (Peninsula)
- **Medway Park** (James Island)

To sign up for the service and to see a list of items accepted, please visit [charleston-sc.gov/compost](http://charleston-sc.gov/compost).

Pilot Project (grant)
Testing logistics for 6 months.

Grant period extended to end
Funding ends with grant.
Education & Outreach Efforts

Two workshops reached over 400 ppl

January- 200 ppl
YouTube- 150 ppl
March- 60 ppl
Promotion weekly at the West Ashley Farmers Market reached nearly 300 ppl in 5 weeks so far.

Thanks to all our volunteers! (over 40 hours)
Charleston proclaimed May 1-7 International Compost Awareness Week
Education & Outreach Efforts

Promotion at special events, like Charleston Green Drinks
Education & Outreach Efforts

Climate Ambassador Program reached over 1,000 people so far

Compost Program is part of the presentation
Education & Outreach Efforts

Social Media posts and shares from partners

Sustainability

134 posts 670 followers 124 following

Charleston Sustainability
Government organization
Welcome to the Sustainability Office at the City of Charleston, SC
www.charleston-sc.gov/sustainability

Sustainable Charleston
1.6K followers • 404 following
Complete the Compost Loop!

Compost generated from the program was donated to nourish our City Parks and gardens.

RESIDENTS CAN HELP complete the compost loop by joining the drop site program (for free) and purchasing Charleston’s own Bees Best Compost at local retailers. Visit beesbestcompost.com

A future flower bed at Medway Park Community Garden.
Program Results (May 2022)

Participation Distribution

- Medway Park: 25.2%
- Corrine Jones Park: 32.5%
- Ackerman Park: 42.3%

835 households participating

3 Drop Sites
Participants in action!

“I love composting because it cuts down on the garbage in my house!”
Participants in action!

“I visit the park regularly anyway, so it’s easy to bring along my food scraps.”
Participants in action!

“My kids love composting and opening the lock!”
Participants in action!

“We live in an apartment so we have no yard to compost at home.

We drop off our food scraps and then head to the dog park. It’s so convenient.”
Participants in action!

Empowering the next generation!
Program Results (May 2022)

Tons of Food Scraps Diverted from the Landfill

GOAL:
Divert 20 tons of food scraps in 6 months

(Achieving the goal requires an average of 3.5 tons per month)
City pays approx. $6.40/household/month for curbside garbage service.

25% of garbage collected curbside is food scraps.
Program Results (May 2022)

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Monthly Cost Per Household to Dispose of Food Scraps

- Garbage
- Food Scraps

- Cost for Drop Site Compost Program: $0.78
- Cost for Curbside Garbage Program: $1.60
- Total Monthly Cost: $6.40
Pilot program offsets about 102 MT CO$_2$e annually

**2023 Goal:** Extend Program to 6 Drop Sites, Reach 5% of households (with partners)

**Investment Request:** $20,000
Committee Discussion on Compost Program
Next Steps
Review Draft Amendment To Address Extra Thick Plastic Bags

By: Katie McKain, Director of Sustainability
Signs at farmers markets are working!
REUSABLE CARRYOUT BAG shall mean a carryout bag that is specifically designed and manufactured for multiple reuse, and meets the following criteria:

1. Displays in a highly visible manner on the bag exterior language describing the bag's ability to be reused and recycled;
2. Has a handle which is stitched and not heat-fused;
3. Is constructed out of any of the following materials:
   a. Cloth, other machine-washable fabric, or other durable materials whether woven or non-woven capable of being cleaned and disinfected; or
   b. Plastic film with a minimum thickness of four (4.0) mils and capable of being cleaned and disinfected.
4. Has a minimum lifetime of 125 uses, which for purposes of this section means the capability of carrying a minimum of 22 pounds 125 times over a distance of at least 175 feet.
(h) While cutlery is considered exempt pursuant to Sec. 14-55(j), Food Providers in the City of Charleston shall only provide, distribute or deliver disposable to-go cutlery (i.e. forks, spoons, knives) and straws for prepared food and beverages upon the request or affirmative response of a customer or person being provided the prepared food or beverage, or in a self-service area or dispenser.
Electric Vehicles and Infrastructure: An Introductory Presentation

By: Westy Westmoreland, Dominion Energy
Westy Westmoreland
Westy.westmoreland@dominionenergy.com

Director - Electrification
31 Years - Dominion Energy South Carolina and SCE&G

Clemson University
Mechanical Engineering ‘90
EV Share of Passenger Vehicle Market

US up from 2% to 4% in 2021
SC lagging US average @ ~2%

Major worldwide shift to EVs in 2021, especially China and Europe

US up from 2% to 4% in 2021
SC lagging US average @ ~2%
52% Annual Growth Rate in 2H 2021

South Carolina
Total registered vehicles: 5.5M

<table>
<thead>
<tr>
<th>Statewide EVs</th>
<th>DESC EVs</th>
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<tbody>
<tr>
<td>9,581</td>
<td>3,455</td>
</tr>
<tr>
<td>(52% YoY increase)</td>
<td>(36% of state total)</td>
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Top Model: Tesla (5,090)
2nd Model: Chevrolet (1,280)
EV volumes by area
YE 2020
EV volumes by area
YE 2021
**Fuel Costs**

ICE passenger vehicle 30 mpg $3.50 per gallon = $0.14 per mile

EV passenger 4 miles per kwh $0.12/kwh = $.03 per mile

**Maintenance Costs**

EV maintenance 50% savings as compared to ICE vehicles – CATBus Director (Clemson)

Regenerative Brakes so at least 50% savings on Brake Pads
90% less moving parts
No fluids to change except Windshield wiper

**Environmental**

BEV has no exhaust so Zero tailpipe emissions and greater air quality
Carbon emission crosser point of EV compared to ICE is 6,500 miles
DESC generation mix is Nuclear, Hydro, Natural Gas, Solar, and Coal
Idling not an issue with EV’s
EV Charging Options

Level 1

- **VOLTAGE:** 120V 1-Phase AC
- **AMPS:** 12-16 Amps
- **CHARGING LOAD:** 1.4-1.9 kW
- **CHARGING TIME:** 3-5 Miles per Hour

Level 2

- **VOLTAGE:** 208V or 240V 1-Phase AC
- **AMPS:** 12-80 Amps (Typ. 32 Amps)
- **CHARGING LOAD:** 2.5-19.2 kW (Typ. 6.6 kW)
- **CHARGING TIME:** 12-60 Miles per Hour

DC Fast Charge

- **VOLTAGE:** 208V or 480V 3-Phase AC
- **AMPS:** >100 Amps
- **CHARGING LOAD:** 50-350 kW
- **CHARGING TIME:** 65-300 miles in 20 minutes
EV Charging

**Level 2:** 30 miles added/hour
240 V – 1φ 7.6 KW AC

**Level 3:** (Fast)
480 V – 3φ DC

<table>
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<tr>
<th>Speed</th>
<th>Range Added in 15 Min Charge</th>
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<tbody>
<tr>
<td>50-75kW</td>
<td>42 Miles</td>
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<tr>
<td>150-175kW</td>
<td>125 Miles</td>
</tr>
<tr>
<td>250kW</td>
<td>210 Miles</td>
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<tr>
<td>350kW</td>
<td>290 Miles</td>
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<tr>
<td>500kW</td>
<td>415 Miles</td>
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Networked and Non-Networked EV Chargers

**Non-Networked Chargers**

Non-networked charging stations are **stand-alone units** that are not part of an EVSE network.

- Lower Cost
- No adjustments/controls
- Cannot set start/stop times

**Networked Chargers**

Over the air (OTA) Software updates
Reports (Usage, sessions)

Manage All Operations Including Pricing

Promote on Google & Apple Maps

Remote Maintenance & Troubleshooting
240 Volt AC Plug Types for Level 2 chargers

- NEMA 6-50: Dryer
- NEMA 14-30: Oven
- NEMA 14-50: Oven
Level 3 DC Fast Charge Plugs/Connectors

SAE J-1772

CCS-1 or J-1772 is the Non-Tesla Standard
EV Readiness Ordinances

• It is 5 times more cost to add a 240 V plug after Construction to a single-family residential home or Multi family complex
• Few Multi family residential complexes offer EV charging as an amenity making EV ownership very challenging for residents
Charging
Workplace
MUD
Retail
Public
NYC orders nearly 200 Mustang Mach-Es for police and first responders

Ford Mustang Mach-E passes Mich. State Police test — the 1st all-electric vehicle to do so

First electric police car in W.Va. begins patrols

Cary debuts electric Tesla Model Y patrol cars

Fremont Police Department Expands Electric Fleet by Deploying Tesla Model Y Patrol Vehicle

NYC Refuse Truck

Westport, Conn

Electric Fire Truck (Los Angeles)
**Electric Off-Road Vehicles**

- Kion (Linde) Summerville, SC
  - 17,500 lb lifting capacity

- Aircraft: Beta Technologies

- E-Tug boat

- Ferry Boats

- Electric Locomotive
Thank You
Resilience Updates

By: Dale Morris,
Chief Resilience Officer
Public Comment Period