


# Energy & Utilities Subcommittee

**Wednesday, October 23, 2019**
**9:00 AM - 11:00 AM**
**Mashburn Hall (306 HOB)**

# Action Packet

**Jose Oliva**
**Speaker**

**Charlie Stone**
**Chair**

# COMMITTEE MEETING REPORT

## Energy & Utilities Subcommittee

**10/23/2019 9:00AM**

**Location:** Mashburn Hall (306 HOB)

**Summary:** No Bills Considered

**Committee meeting was reported out: Wednesday, October 23, 2019 11:46AM**

# COMMITTEE MEETING REPORT

## Energy & Utilities Subcommittee

### 10/23/2019 9:00AM

**Location:** Mashburn Hall (306 HOB)

**Attendance:**

| | *Present* | *Absent* | *Excused* |
|---|---|---|---|
| Charlie Stone (Chair) | X | | |
| Vance Aloupis, Jr. | X | | |
| Michael Caruso | X | | |
| Fentrice Driskell | X | | |
| Jason Fischer | X | | |
| Erin Grall | X | | |
| Tommy Gregory | X | | |
| Dianne Hart | X | | |
| Delores Hogan Johnson | X | | |
| Al Jacquet | | | X |
| Dotie Joseph | X | | |
| Chip LaMarca | X | | |
| Mel Ponder | X | | |
| David Santiago | | | X |
| Jayer Williamson | X | | |
| **Totals:** | **13** | **0** | **2** |

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# COMMITTEE MEETING REPORT

## Energy & Utilities Subcommittee

### 10/23/2019 9:00AM

**Location:** Mashburn Hall (306 HOB)

### Presentation/Workshop/Other Business Appearances:

Dylan Reed (At Request of Member, Committee or Staff) - Information Only
Advance Energy Economy
Director
1000 Vermont Avenue NW, Suite 300
Washington, District of Columbia 20005
Phone: 570-877-3549

Andrew Apgar (At Request of Member, Committee or Staff) - Information Only
Schneider Electric
Business Development Leader
5158 Lake Deeson Woods Court
Florida, Lakeland 33805
Phone: 863-337-5922

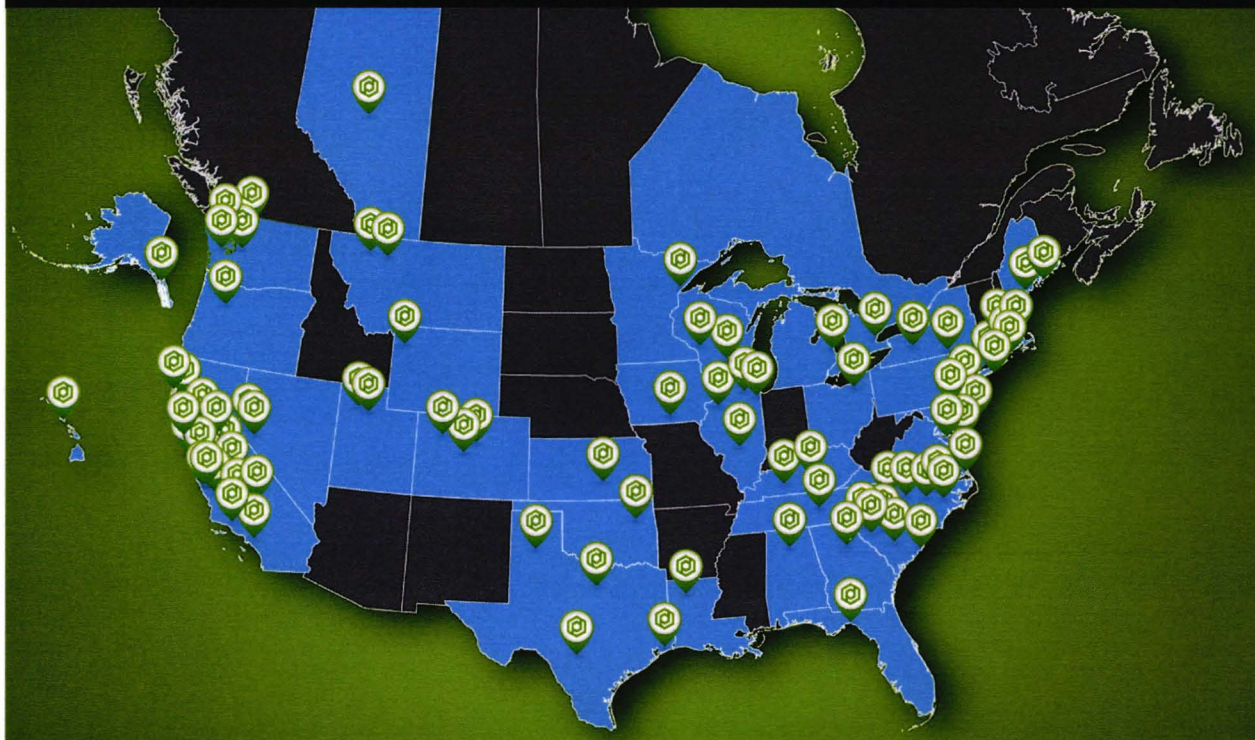
Josh Cohen (At Request of Member, Committee or Staff) - Information Only
Greenlots
Director of Policy
1910 Towne Centre Blvd., Suite 250
Annapolis, Maryland 21401
Phone: 410-989-8121

Eric J. McCarthy (At Request of Member, Committee or Staff) - Information Only
Proterra Inc.
Supervisor
1 Whitlee Court
Greenville, South Carolina 29607
Phone: 240-841-1014

**Committee meeting was reported out: Wednesday, October 23, 2019 11:46AM**

# OUR CUSTOMERS

PROTERRA



**>750 buses** sold to **>100 customers** across **41 states/provinces**

**AL**
ALABAMA A&M UNIVERSITY NORMAL

**AK**
CAPITAL TRANSIT JUNEAU

**CA**
CITY OF ARVIN
CITY OF DUARTE
FCRTA FRESNO
FAST FAIRFIELD
FOOTHILL TRANSIT WEST COVINA
HUMBOLDT TRANSIT AUTHORITY EUREKA
LADOT TRANSIT LOS ANGELES
MAX MODESTO
RABA REDDING
RTD STOCKTON
SACRAMENTO INTERNATIONAL AIRPORT
SAMTRANS SAN CARLOS
SAN JOSE INTERNATIONAL AIRPORT
TRI DELTA TRANSIT ANTIOCH
VTA SAN JOSE
VISALIA TRANSIT VISALIA
YOSEMITE NATIONAL PARK

**CO**
TOWN OF BRECKENRIDGE
SUMMIT COUNTY FRISCO
ECO TRANSIT GYPSUM

**CT**
GBT BRIDGEPORT

**DC**
DC CIRCULATOR WASHINGTON

**DE**
DART FIRST STATE DOVER

**FL**
STAR METRO TALLAHASSEE

**GA**
UNIV. OF GEORGIA ATHENS

**HI**
JTB HAWAII HONOLULU

**IA**
DART DES MOINES

**IL**
QUAD CITIES METROLINK MOLINE
JLL CHICAGO
CONNECT TRANSIT BLOOMINGTON - NORMAL
CHICAGO TRANSIT AUTHORITY

**KS**
WICHITA TRANSIT WICHITA

**KY**
TARC LOUISVILLE
LEXTRAN LEXINGTON

**LA**
SPORTRAN SHREVEPORT

**MA**
WRTA WORCESTER
PVTA SPRINGFIELD

**MD**
BGE BALTIMORE
MCDOT ROCKVILLE

**ME**
SH-ZOOM TRANSIT BIDDEFORD
GREATER PORTLAND METRO PORTLAND

**MI**
BLUE WATER AREA TRANSIT PORT HURON

**MN**
DTA DULUTH

**MT**
DASH UNIV. OF MONTANA MISSOULA
MOUNTAIN LINE MISSOULA

**NC**
RALEIGH-DURHAM INTERNATIONAL AIRPORT
ART ASHEVILLE
GTA GREENSBORO
DUKE UNIVERSITY DURHAM
GO TRIANGLE DURHAM

**NV**
RTC RENO
TAHOE TRANSPORTATION DISTRICT STATELINE

**NY**
MTA NEW YORK CITY
TOMPKINS CONSOLIDATED AREA TRANSIT ITHACA
PORT AUTHORITY OF NY & NJ

**OH**
LAKETRAN PAINESVILLE

**OK**
THE CHEROKEE NATION

**OR**
SMART PORTLAND

**PA**
SEPTA PHILADELPHIA

**RI**
RIPTA PROVIDENCE

**SC**
CATBUS CLEMSON
CITY OF SENECA
GREENLINK GREENVILLE
CITY OF ROCK HILL
CARTA CHARLESTON

**TN**
MTA NASHVILLE

**TX**
VIA SAN ANTONIO
DART DALLAS
CITIBUS LUBBOCK
PAT PORT ARTHUR

**UT**
PARK CITY TRANSIT PARK CITY
UTA SALT LAKE CITY

**VA**
HAMPTON ROADS TRANSIT NORFOLK

**WA**
KING COUNTY METRO SEATTLE
EVERETT TRANSIT EVERETT
KITSAP TRANSIT BREMERTON
PIERCE TRANSIT LAKEWOOD

**WI**
METRO TRANSIT MADISON
LA CROSSE MTU LA CROSSE

**WY**
START JACKSON

**CANADA**

**AB**
EDMONTON TRANSIT SERVICE

**ON**
TORONTO TRANSIT COMMISSION

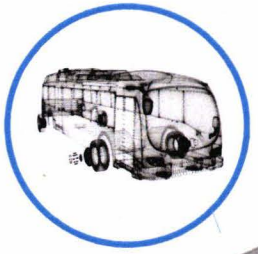
Only announced customer names shown. Updated May 2019

# THE PROTERRA CATALYST®
## PURPOSE-BUILT EV TECHNOLOGY FOR MASS TRANSIT

PROTERRA

### Advanced Composite Body

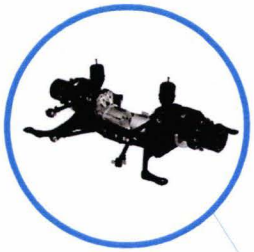
Lightweight and durable carbon-fiber-reinforced composite



### Heavy Duty Battery Pack

High energy density, ruggedized battery packs purpose built for commercial vehicles







### High Efficiency Drivetrain

2x horsepower
5x efficiency of diesel

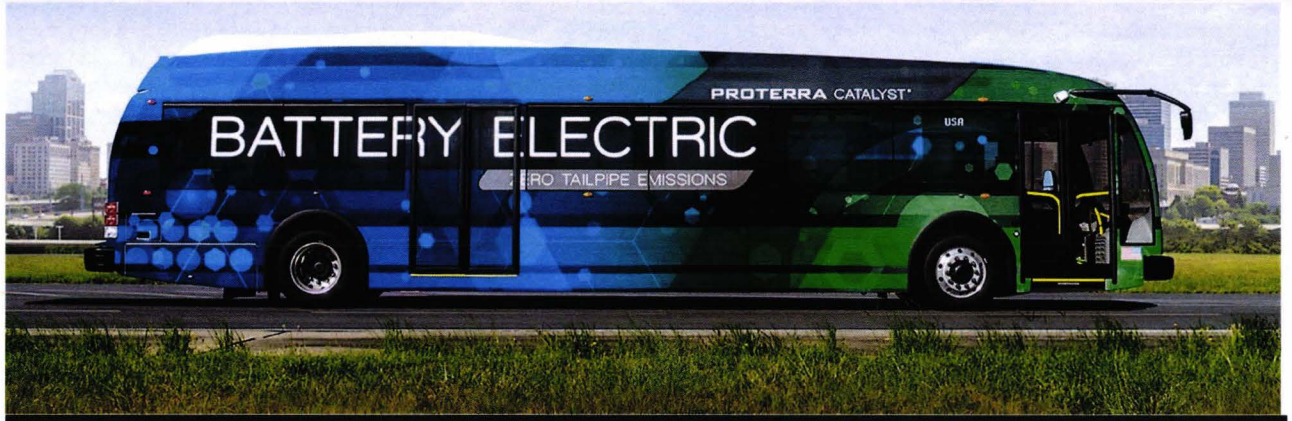


### Universal Charging

Industry standard plug-in and overhead high power Level 3 charging

# THE SOLUTION: REVOLUTIONARY APPROACH TO TRANSPORT

PROTERRA




THE ONLY TRANSIT PLATFORM DESIGNED SPECIFICALLY FOR EV PERFORMANCE

- ✓ Reliable
- ✓ Efficient
- ✓ Flexible and scalable
- ✓ Clean
- ✓ Quiet
- ✓ Demonstrable ROI

**100+%** Less Tailpipe emission

**25+%** Quieter

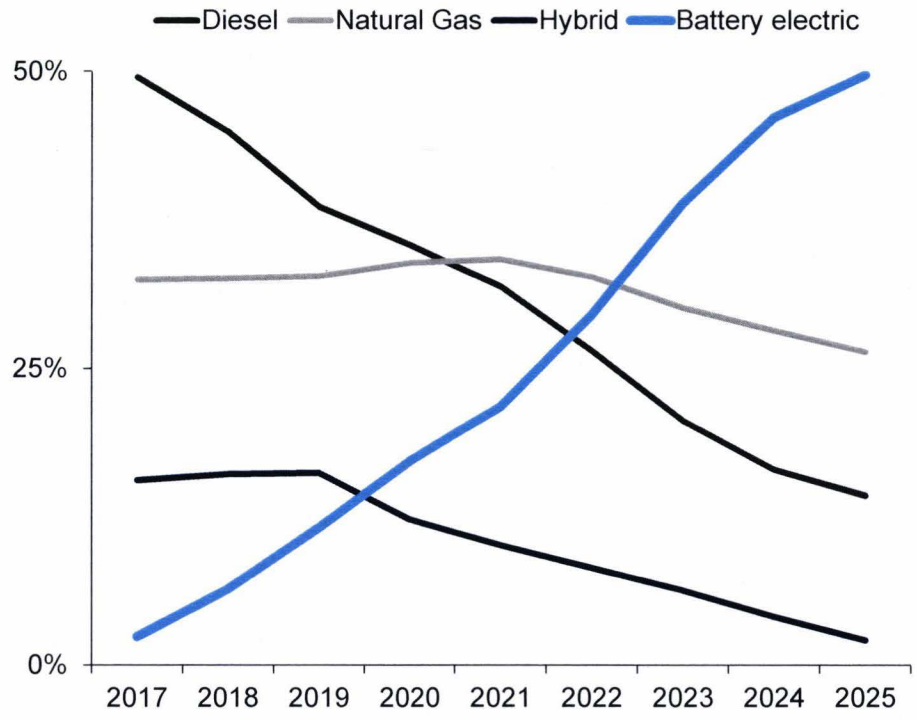
**400+%** More fuel efficient

**78+%** Lower lifetime fuel cost

# MAJOR COMMITMENTS TO 100% EV TRANSIT

PROTERRA

## EV Transit Bus adoption continues to increase




Source: Frost & Sullivan Heavy Duty Transit Bus North America Powertrain Adoption Forecast

## Major cities adopting EV technology for transit buses

| New York | Chicago | Washington D.C. |
|---|---|---|
| 100% EV by 2040 | Piloting since 2014 | 100% EV by 2045 |
| **4,700 buses** | **2,100 buses** | **1,900 buses** |

| Seattle | Philadelphia | Miami |
|---|---|---|
| 100% EV by 2034 | Piloting since 2017 | 50% EV by 2035 |
| **1,500 buses** | **1,500 buses** | **800 buses** |

## California mandates 100% electric transit buses by 2040

New purchase mandates

**25%** by 2023 → **50%** by 2026 → **100%** by 2029

**12,000 buses across California**
*(17% of nationwide fleet)*

Source: National Transit Database; agency websites; 2017 American Public Transportation Association Fact Book

# PROTERRA ELECTRIC BUSES IN FLORIDA

PROTERRA



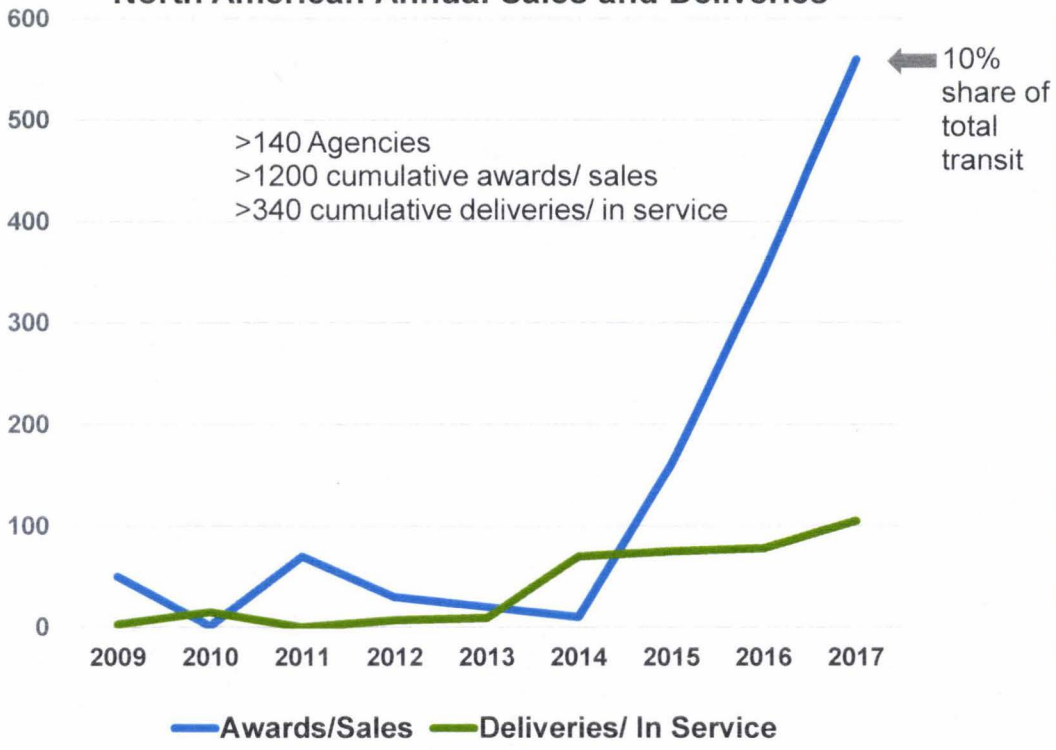

*Pending

starmetro HART MIAMI-DADE COUNTY LYNX

# THE TRANSIT MARKET IS RAPIDLY SHIFTING TO EV

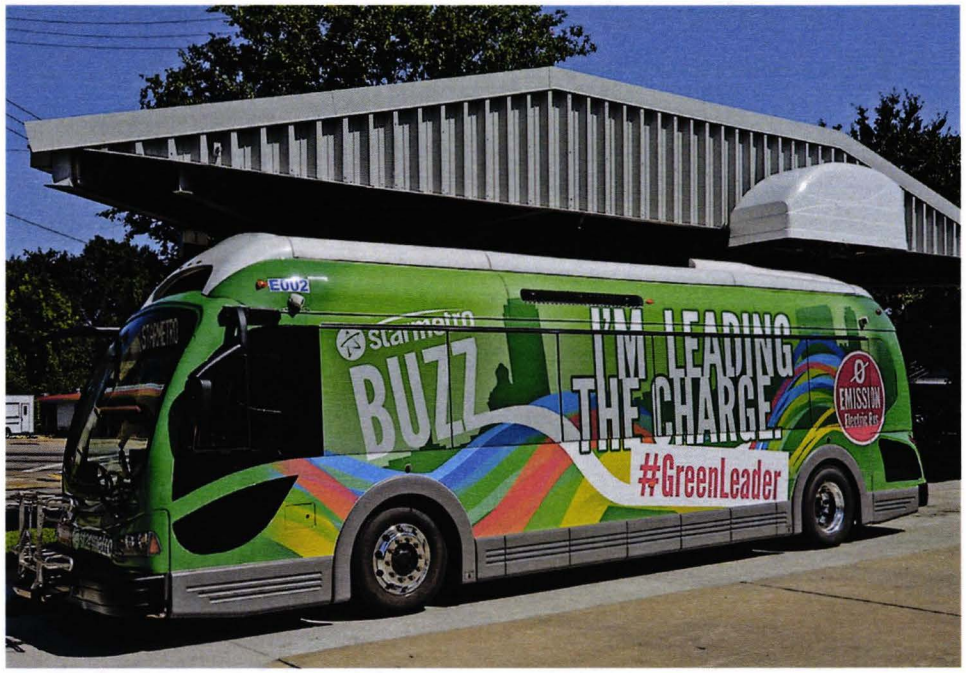
PROTERRA

## Battery Electric Buses: North American Annual Sales and Deliveries



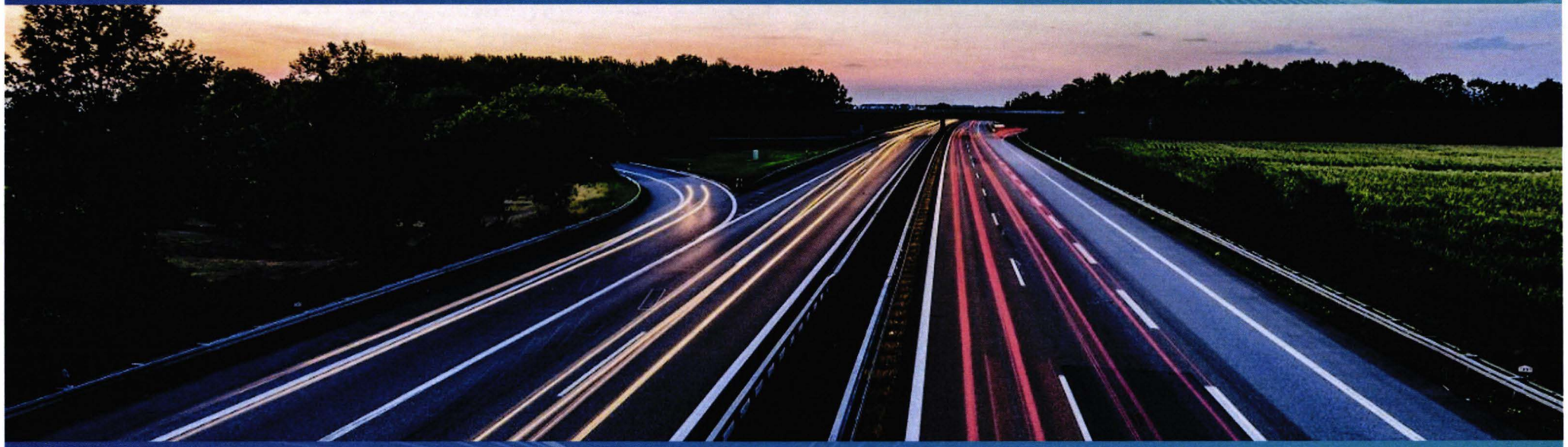

Source: CTE Center for Transportation and the Environment

## StarMetro Bus



# Advancing Transportation Electrification

## House Energy and Utilities Committee



October 23, 2019

greenlots
A Member of the Shell Group

Founded in **2008** with over a decade of experience

Headquartered in **Los Angeles,** California

**Global footprint** with offices throughout the US and in Canada, India, and Southeast Asia

Over **150 Employees** and contractors worldwide

**Working with** utilities, cities, automakers, fleets & site hosts across the US and the world

Acquired by **Shell** in January 2019

# Greenlots is powering the future of electric transportation with industry-leading EV charging software and services

greenlots
A Member of the Shell Group

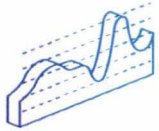
## EV Charging Network Software

Operate & monitor networks of charging stations



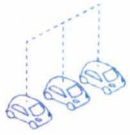
## Smart Charging Optimization

Site-focused energy management



## Digital Mobility Solutions

Digital platforms for fleets and auto OEMs to expand their emobility offerings

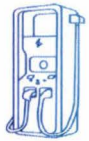


## Grid Balancing Services

Aggregate and leverage EV load to maintain grid reliability and efficiency



## Our turnkey approach to charging infrastructure



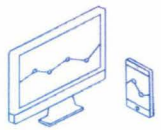
Choice of hardware



Program Management



Engineering & Commissioning



Software & Mobile App



Customer Support and O&M

# Benefits of EVs

- For drivers: less expensive fuel; less maintenance; more fun!
- For the economy: supports local jobs and businesses
- For communities: no tailpipe emissions; cleaner air
- For climate: no tailpipe emissions; opportunity for no/low emissions from electricity
- For electric customers: Downward pressure on electric rates for all utility customers (with managed charging)

# Barriers to Adoption

- Lack of awareness and technology familiarity
- Availability of charging infrastructure – both real and perceived
- Vehicle price and model availability
- Local building and zoning codes and permitting practices

# Opportunities to Advance the Market

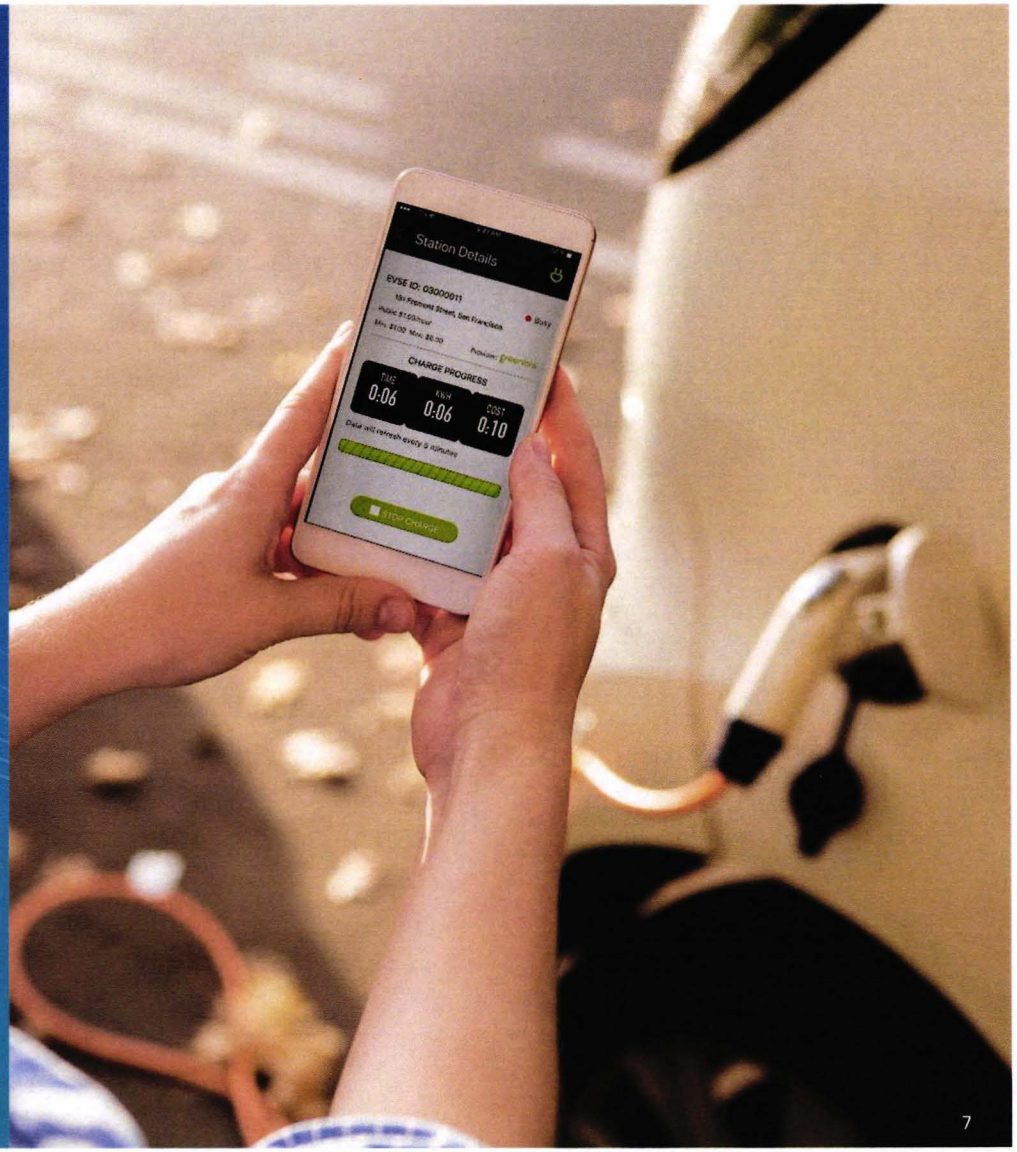
- State and local policies and targets
- Education and awareness campaigns
- Building and zoning code updates
  - EV-Ready building codes
  - "Right to Charge" legislation
- Coordinated interstate and intrastate corridor planning
- Rebates and incentives for EVs and EV charging infrastructure

# Opportunities to Grow Market, cont'd.

- Florida, in particular, can leverage investment in resilience
- Electric utilities have a central role to play
  - Trusted resource for customers
  - Technical capacity to procure, install and operate stations
    - Can maximize competition through direct procurement
  - Uniquely positioned to manage grid impact
    - Integrate variable resources
    - Shift load to off-peak

# Thank you

Josh Cohen
Director, Policy
410-989-8121
jcohen@greenlots.com



## COMMITTEE/SUBCOMMITTEE APPEARANCE RECORD

Please fill out the entire form and submit both copies to the Committee Administrative Assistant at the meeting.

Bill ☐ Amendment ☐

Bill/PCS/PCB Number: _____

Amendment Barcode Number: _____

**Name:** Josh Cohen

**Representing:** Greenlots

Title: Director, Policy

Address: 1910 Towne Centre Blvd, Ste. 250

City: Annapolis State/Zip: MD 21401

Phone Number: 410-989-8121 Meeting Date: 10/23/2019

Committee/Subcommittee: House Energy & Utilities

Presentation/Workshop Topic: Advanced Energy Trends

Registered Lobbyist: YES ☐ NO ☒

State Employee: YES ☐ NO ☒

☐ I wish to speak

☒ Appearing in response to an inquiry for information made by member, committee, or staff

☐ Appearing in response to subpoena

☐ Appearing at the written request of the chair

☐ Judge or elected officer appearing in official capacity

☐ Lobbyist Appearance form submitted online

(If you are testifying on an amendment, please also indicate your position as a proponent or opponent on the bill as a whole.)

**Bill:** Proponent ☐ Opponent ☐ Waive in Support ☐ Waive in Opposition ☐ Info only ☐

**Amendment:** Proponent ☐ Opponent ☐ Waive in Support ☐ Waive in Opposition ☐ Info only ☐

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Bill ☐ Amendment ☐

Bill/PCS/PCB Number: _____

Amendment Barcode Number: _____

**Name**: ANDREW APGAR

**Representing**: SCHNEIDER ELECTRIC

Title: BUSINESS DEVELOPMENT LEADER

Address: 5158 LAKE DEESON WOODS CT.

City: LAKELAND State/Zip: FL 33805

Phone Number: (863) 337-5922 Meeting Date: 10/23/19

Committee/Subcommittee: HOUSE ENERGY & UTILITIES SUBCOMMITTEE

Presentation/Workshop Topic: ADVANCED ENERGY TRENDS

Registered Lobbyist: YES ☐ NO ☒

State Employee: YES ☐ NO ☒

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Bill/PCS/PCB Number: _____

Amendment Barcode Number: _____

**Name**: Dylan Reed

**Representing**: Advanced Energy Economy

Title: Director

Address: 1000 Vermont Ave. NW Suite 3000

City: Washington State/Zip: DC/20005

Phone Number: (570)877-3549 Meeting Date: 10/23/2019

Committee/Subcommittee: Energy & Utilities Subcommittee

Presentation/Workshop Topic: Advanced Energy Trends

Registered Lobbyist: YES ☐ NO ☒

State Employee: YES ☐ NO ☒

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Bill ☐ Amendment ☐

Bill/PCS/PCB Number: _____

Amendment Barcode Number: _____

**Name**: Eric J. McCarthy

**Representing**: PROTERRA INC

Title: SVP

Address: 1 Whittle Ct

City: Greenville State/Zip: SC 29607

Phone Number: 240-941-1014 Meeting Date: _____

Committee/Subcommittee: House Energy & Utilities Subcommittee

Presentation/Workshop Topic: Advanced Energy Trends

Registered Lobbyist: YES ☐ NO ☒

State Employee: YES ☐ NO ☒

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