



**Session #12: Resiliency Considerations with  
Alternative Fuels & Transportation Technology**

**November 04, 2020**



<https://www.sustainablefleetexpo.com/>

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## Platinum Sponsors



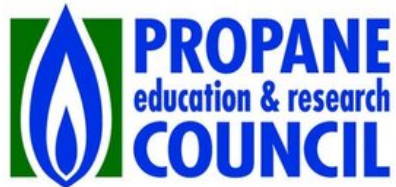
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## Next Series Dates & Topics:

**November 10:** Sustainable Fleet Analytical Tools & Information

**November 18:** Potential Impacts of Connectivity/Automation Technology

**December 02:** Idle Reduction an Easy Win

# Format

- Q&A at the end
- Submit questions and comments to “Panelists”
- Scheduled for 2:00p-3:30p
- Handout
- Recording



Rick Sapienza

[resapienza@ncsu.edu](mailto:resapienza@ncsu.edu)

Phone: 919-515-2788

- **Clean Transportation Program Director NC Clean Energy Technology Center at NC State University**
- **8 years with NC State**
- **30+ years experience including General Motors, Draper Lab and Great Lakes Pulp & Fibre in both engineering and business management roles**



**Resiliency Considerations with Alternative  
Fuels & Transportation Technology  
November 04, 2020**

**2:00-2:05 Rick Sapienza, NCCETC--Welcome & Introduction**

**2:05-2:15 David Doctor, E4 Carolinas—Need for Change**

**2:15-2:23 David Slutzky, Fermata Energy—V2X Technology & Applications**

**2:23-2:33 Cassie Powers, NASEO—AFVs in Emergency Response**

**2:33-2:41 Jesus Sosa, EVStructure—Resiliency Opportunities Using Hydrogen**

**2:41-2:51 Peter Morano, South Jersey Gas—SJG Resiliency Transportation Fueling**

**2:51-2:59 Desmond Wheatley, Beam Global—Solar Charging Applications**

**2:59-3:10 April Groover Combs, State of FL Energy Office—Diverse Technology & Energy  
Conditions Emergency Response Planning**

**3:10-3:30 Q&A**





David Doctor  
daviddoctor@e4carolinas.org  
704-661-8131

- President & CEO of E4 Carolinas
- Mission: cultivate a collaborative Carolina energy cluster to accelerate economic growth, efficient resources and care for our environment, resulting in increased employment, productivity and prosperity
- More than 30 years experience in the energy and information-technology industries
- Helped launch 16 startups
- Twice received Ernst & Young's Regional Entrepreneur of the Year award







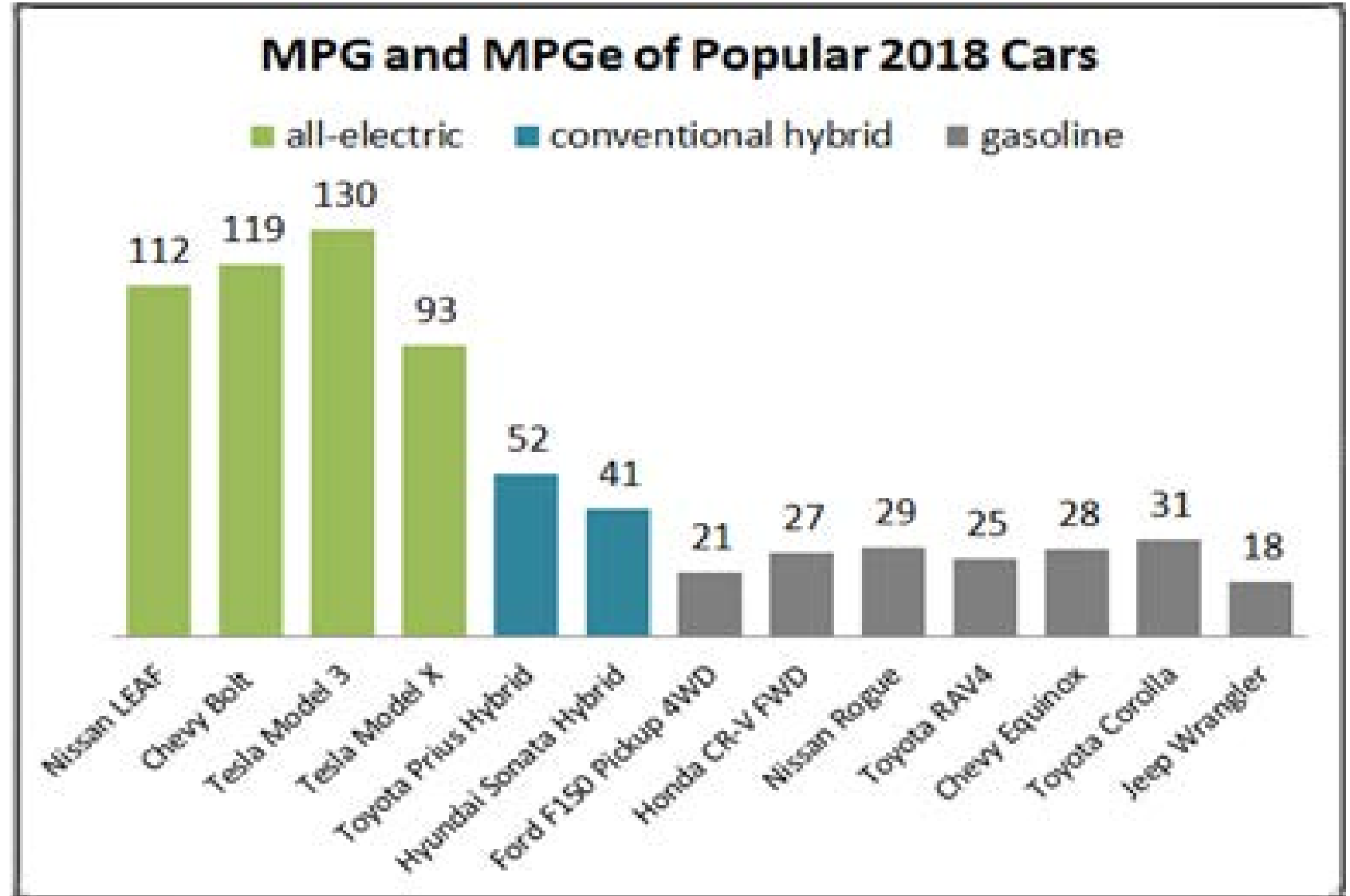
Sustainable Fleet Technology Conference Series

# Need for Change

November 4, 2020



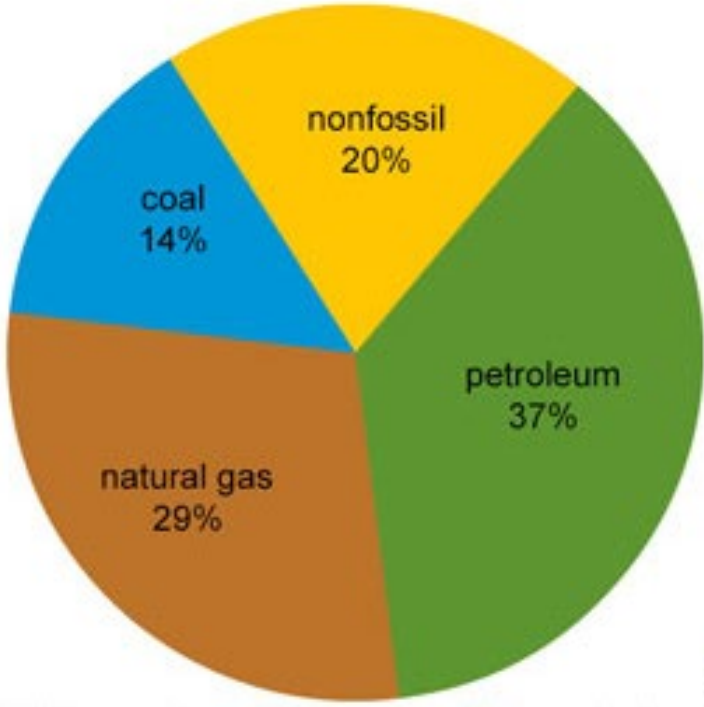
# EVs: A Great Efficiency Story



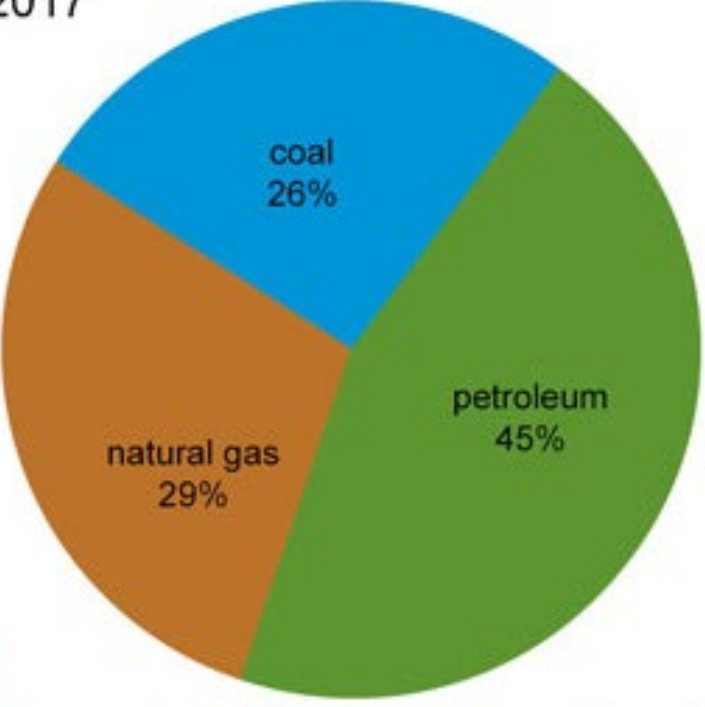
# EVs: A Great Environmental Story



U.S. energy consumption by major fuel type, 2017



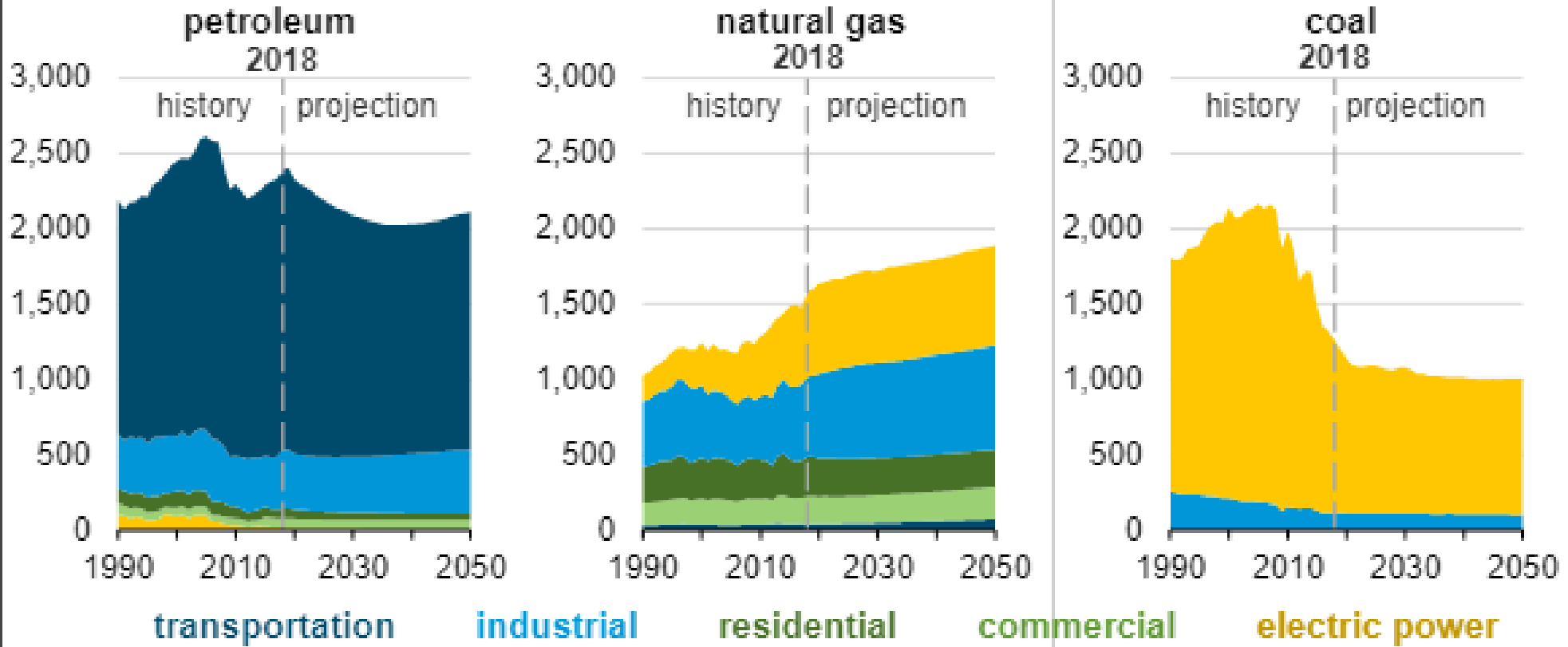
Resulting U.S. energy-related carbon dioxide emissions by major fuel type, 2017



# CO<sub>2</sub> Emissions by Source



U.S. energy-related carbon dioxide emissions in AEO2019 Reference case (1990-2050)  
million metric tons

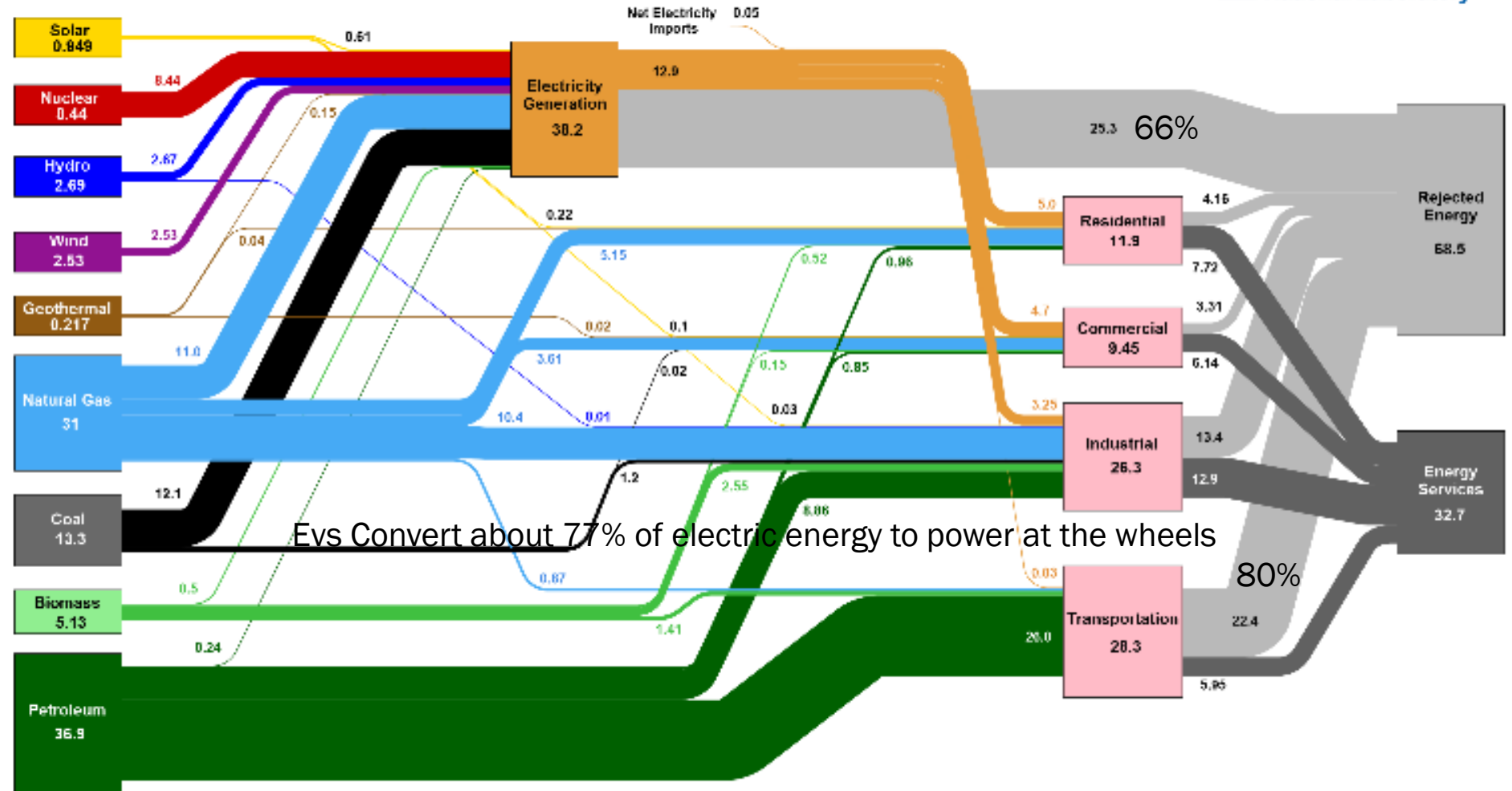




# National Energy Mix



Estimated U.S. Energy Consumption in 2018: 101.2 Quads



Evs Convert about 77% of electric energy to power at the wheels

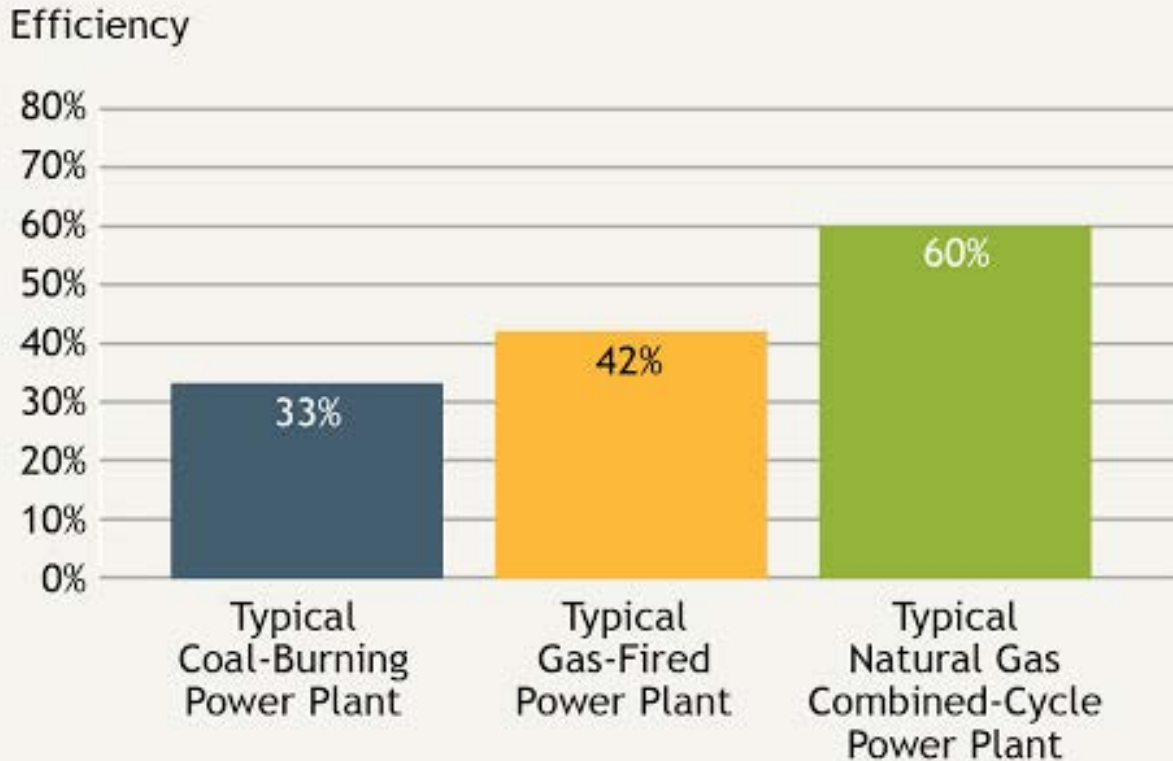
80%



# Changing Power Generation Mix



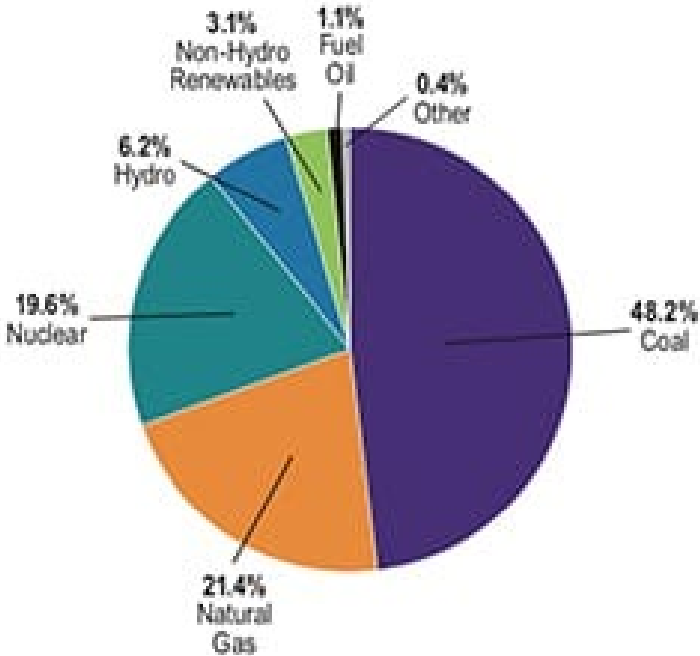
## The Efficiency of Various Power Plants Converting Heat Energy into Electrical Power



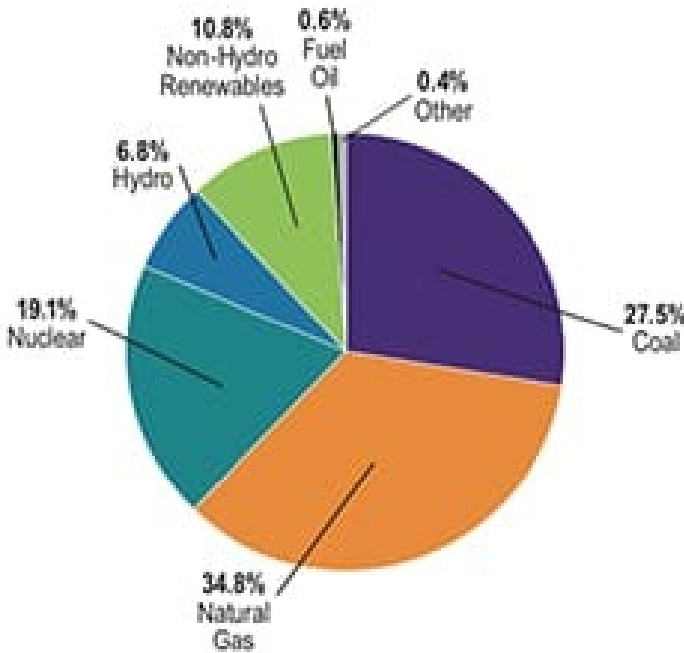
# Changing Power Generation Mix



### 2008 National Energy Resource Mix



### 2018 National Energy Resource Mix (preliminary)

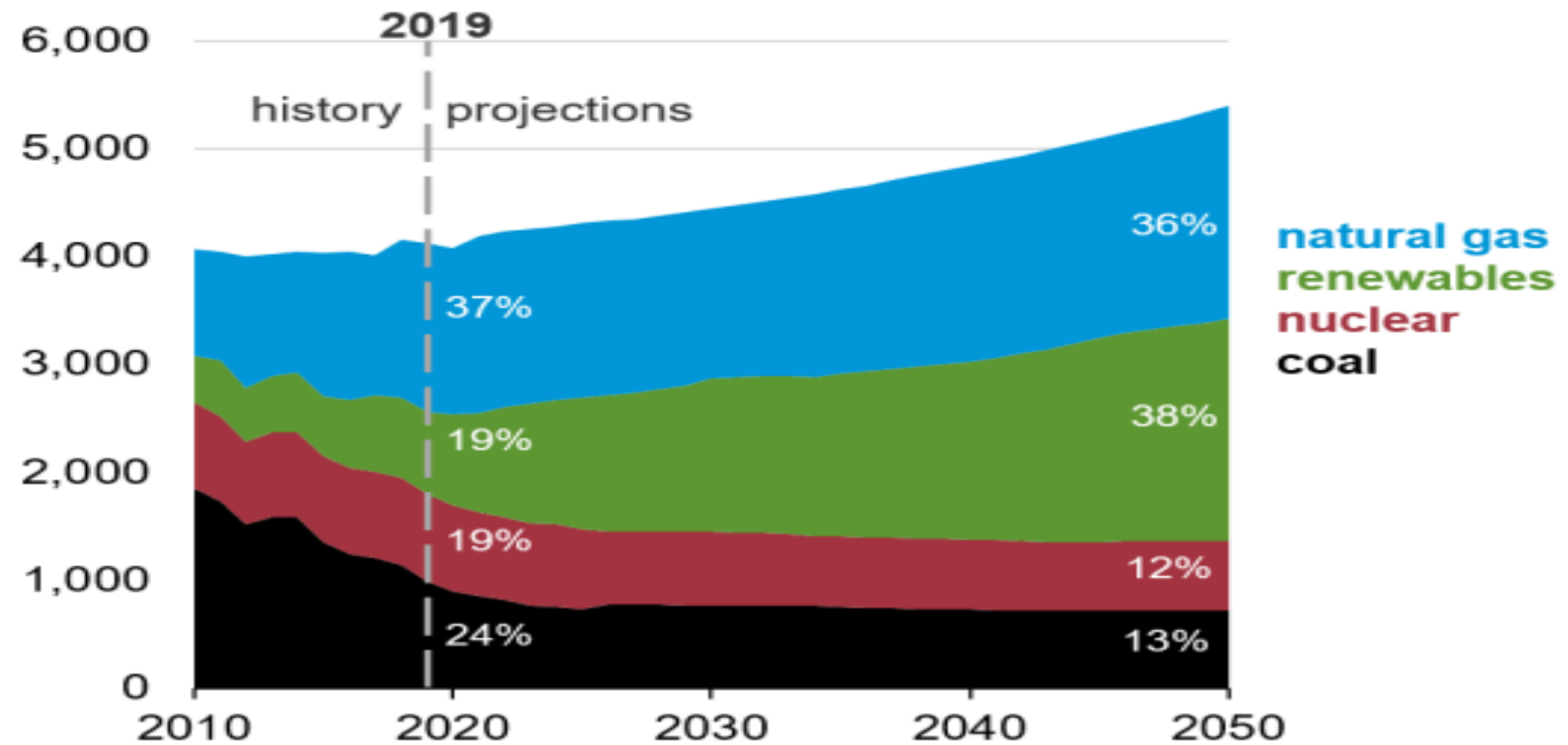


Source: Department of Energy, Energy Information Administration.



# Historic/Future Power Generation by Fuel

**Electricity generation from selected fuels  
(AEO2020 Reference case)**  
billion kilowatthours







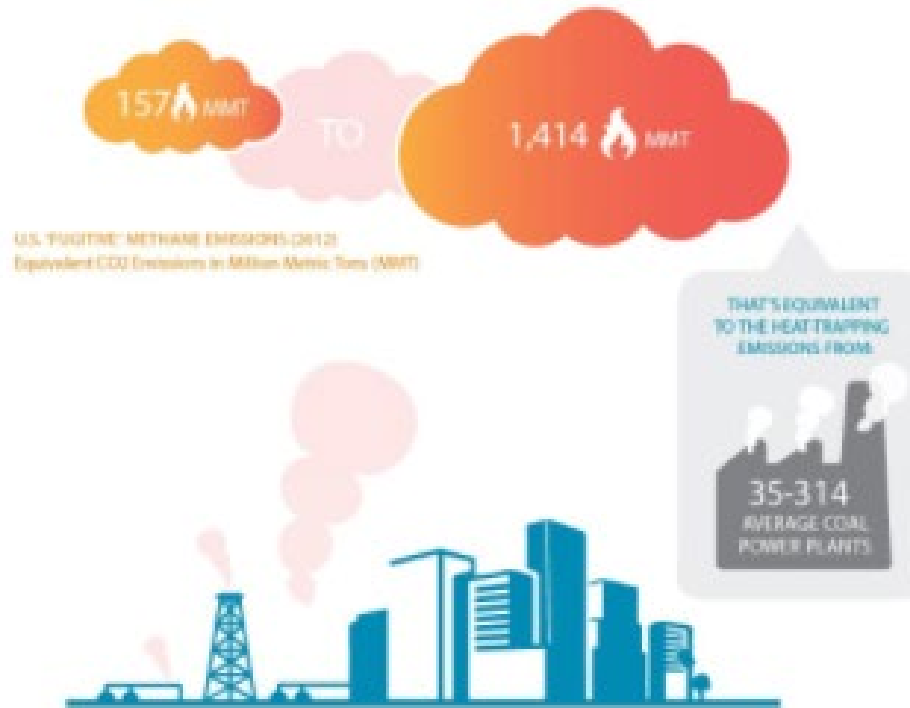
# Energy-related CO<sub>2</sub> Emissions

## THE CLIMATE RISKS OF NATURAL GAS

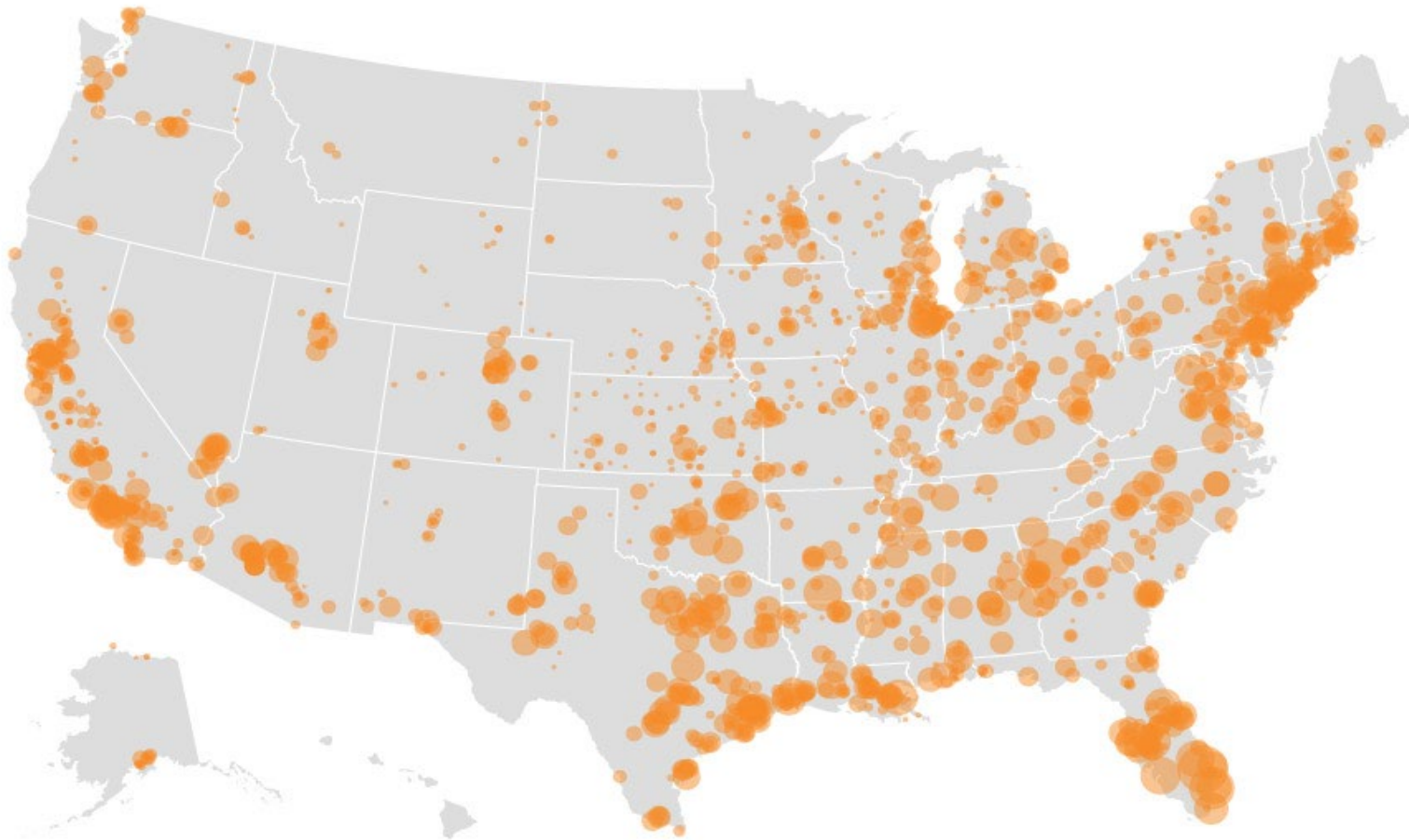
### NATURAL GAS HAS HIDDEN CLIMATE RISKS

METHANE – A PRIMARY COMPONENT OF NATURAL GAS – LEAKS FROM DRILLING SITES AND PIPELINES. OVER A 100-YEAR PERIOD, IT IS 34 TIMES MORE POTENT THAN CARBON DIOXIDE AT TRAPPING HEAT.

1-9% of all natural gas produced **ESCAPES** into the atmosphere



# U.S. Natural Gas Power Generation by State



# Alternative Fuel and Vehicle Planning



\$1.68 MM 2020 – 22 project providing \$827,000 in federal funds and \$856,000 in State and local cost share to research and plan the use of alternative fuel vehicles for storm resilience and recovery

## Grant Recipients



## Cost Share Partners



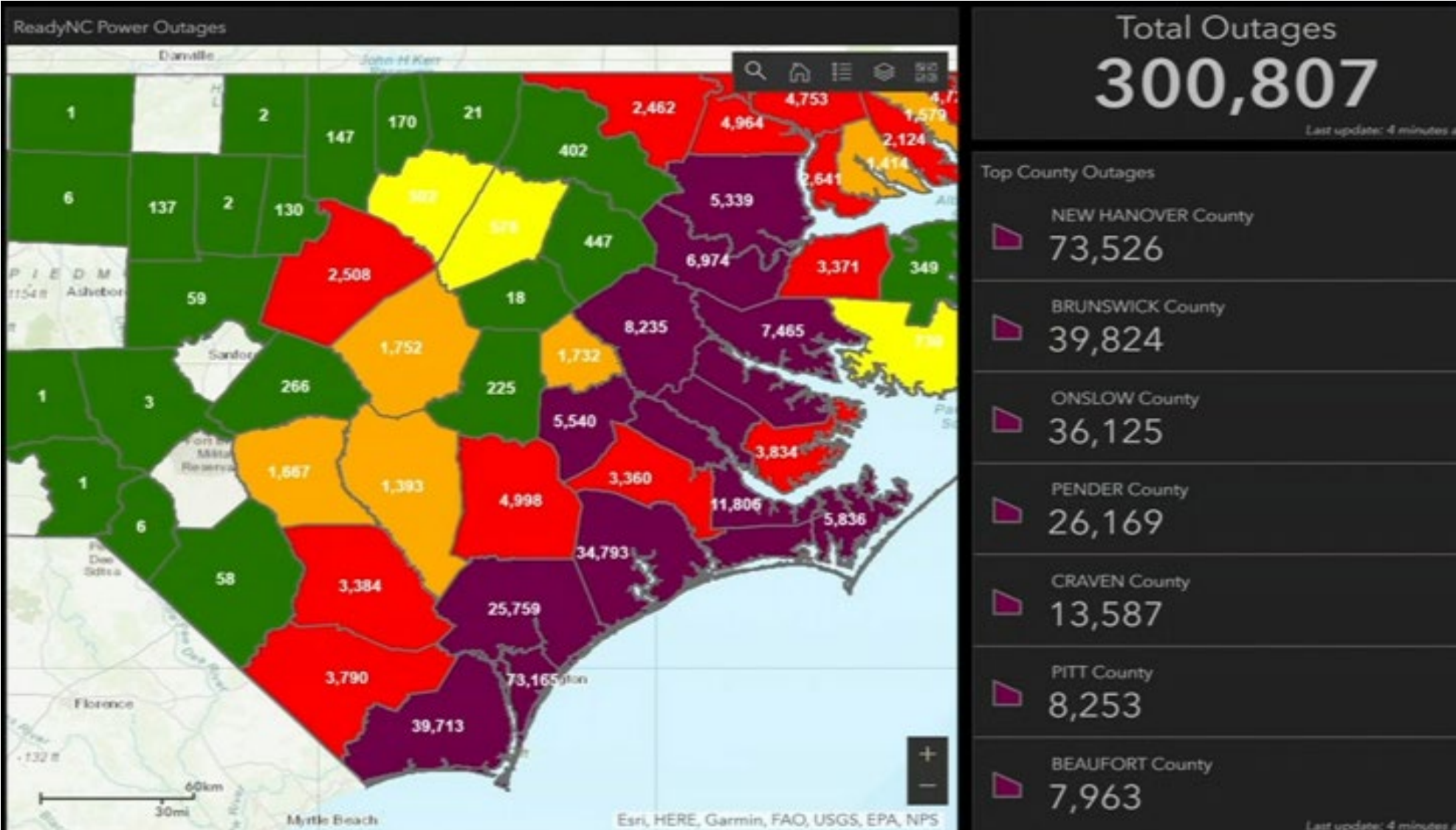
## Supporting Members



# First Responder Alternative Fuel Vehicles



# Where's the Fuel When the Power is Out?





**Sustainable Fleet Technology Conference Series**

# **Need for Change**

**November 4, 2020**





David Slutzky

[david@fermataenergy.com](mailto:david@fermataenergy.com)

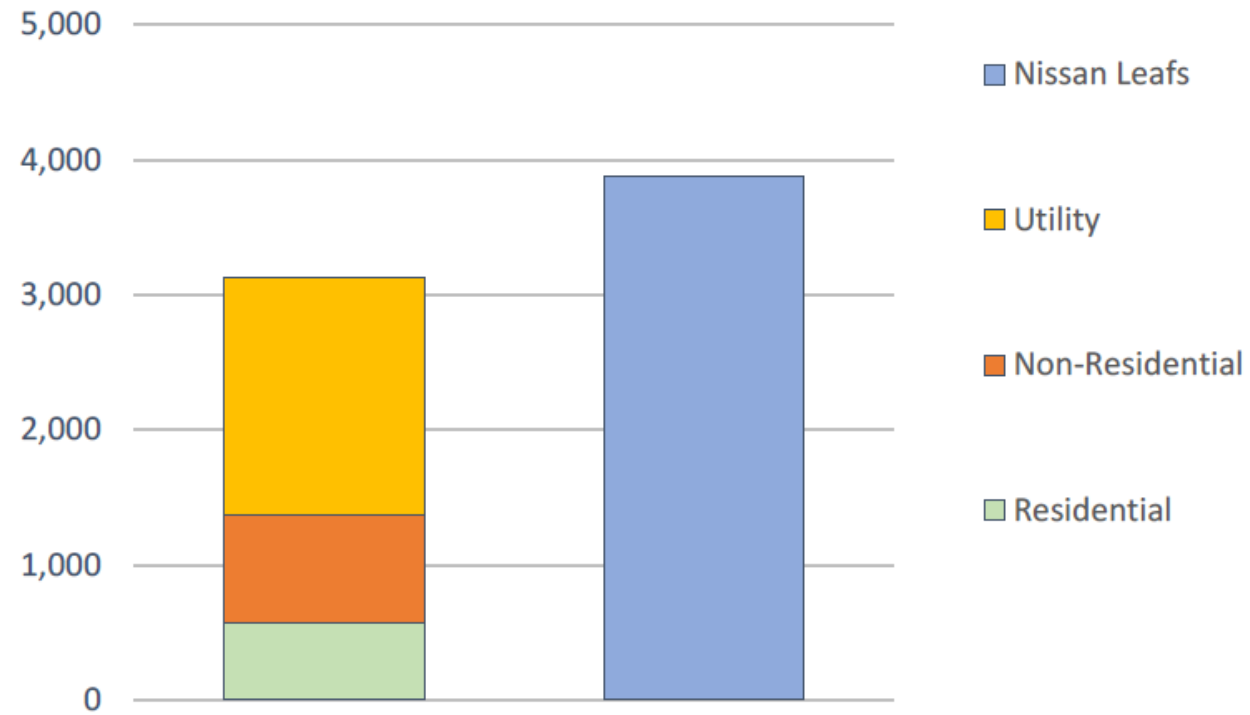
434-989-5888

- Founder and CEO Fermata Energy
- Focused on developing and commercializing vehicle-to-grid technology
- Environmental expert and entrepreneur
- Prior to Fermata co-founded Skeo Solutions, an environmental policy consulting firm, and worked as a Senior Policy Advisor at the White House and U.S. EPA
- Associate Professor in the Science, Technology and Society Program at the UVA School of Engineering and Applied Science
- BA from University of Chicago and JD from Chicago-Kent College of Law



# EV AS ENERGY STORAGE

*Cumulative MWh U.S. Deployments (2012-2019)*



*source: Wood Mackenzie Energy Transitions Practice, InsideEVs*





# WHAT IS NEEDED TO PERFORM V2X?

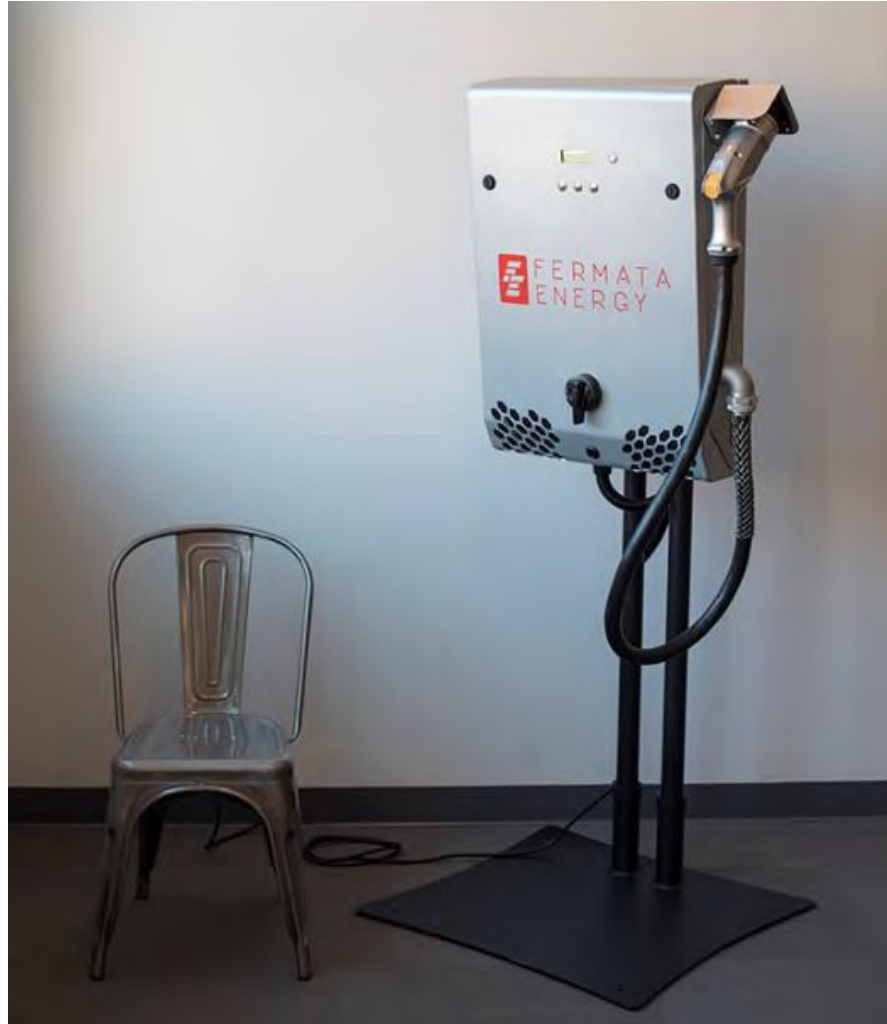


SFTCS: Resiliency Live  
Session  
NC Cleantech Center  
November 4, 2020





# FERMATA HARDWARE





# FERMATA SOFTWARE

**FERMATA ENERGY** EIT \$513.00 Lifetime Savings Help john@fermataenergy.com

Overview Events Facilities Fleet Performance

**Facility Meter** 1 On

Facility Charger → 95%

-0.08kW

**\$187.50** Morning Afternoon Tomorrow

Today 2:18pm **60% 55% 90%**

**FERMATA ENERGY** EIT \$513.00 Lifetime Savings Help john@fermataenergy.com

Overview Events Facilities Fleet Performance

**Facility Meter** 1 On

Facility Charger → 95%

-0.08kW

**Chargers** **Vehicles**

| Meter          | Charger          | Status | Next DC Event | Savings (\$) | Plugged In | Vehicle | SOC% | Charge (kW) | Disch. (kW) |
|----------------|------------------|--------|---------------|--------------|------------|---------|------|-------------|-------------|
| Facility Meter | Facility Charger | ✓      | -1217 Hrs     | 15000        | ✓          | -       | 95   | 0           | 0.084       |

Fleet customer web interface



Fermata operations web interface



# V2X VALUE TODAY

## CUSTOMER + UTILITY VALUE

- Customer Energy + Bill Management
- Utility DR / DERMS / Critical Peak
- Ancillary services



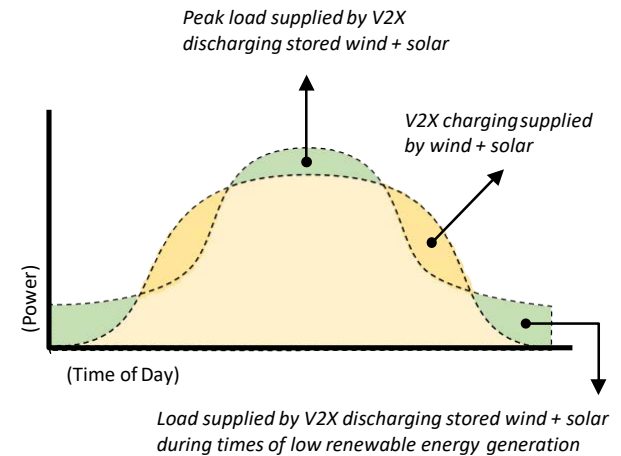
## DISASTER RESILIENCY + BACKUP POWER

- EV fleet as swappable batteries for buildings during times of outage = 24/7 backup power
- V2H residential backup



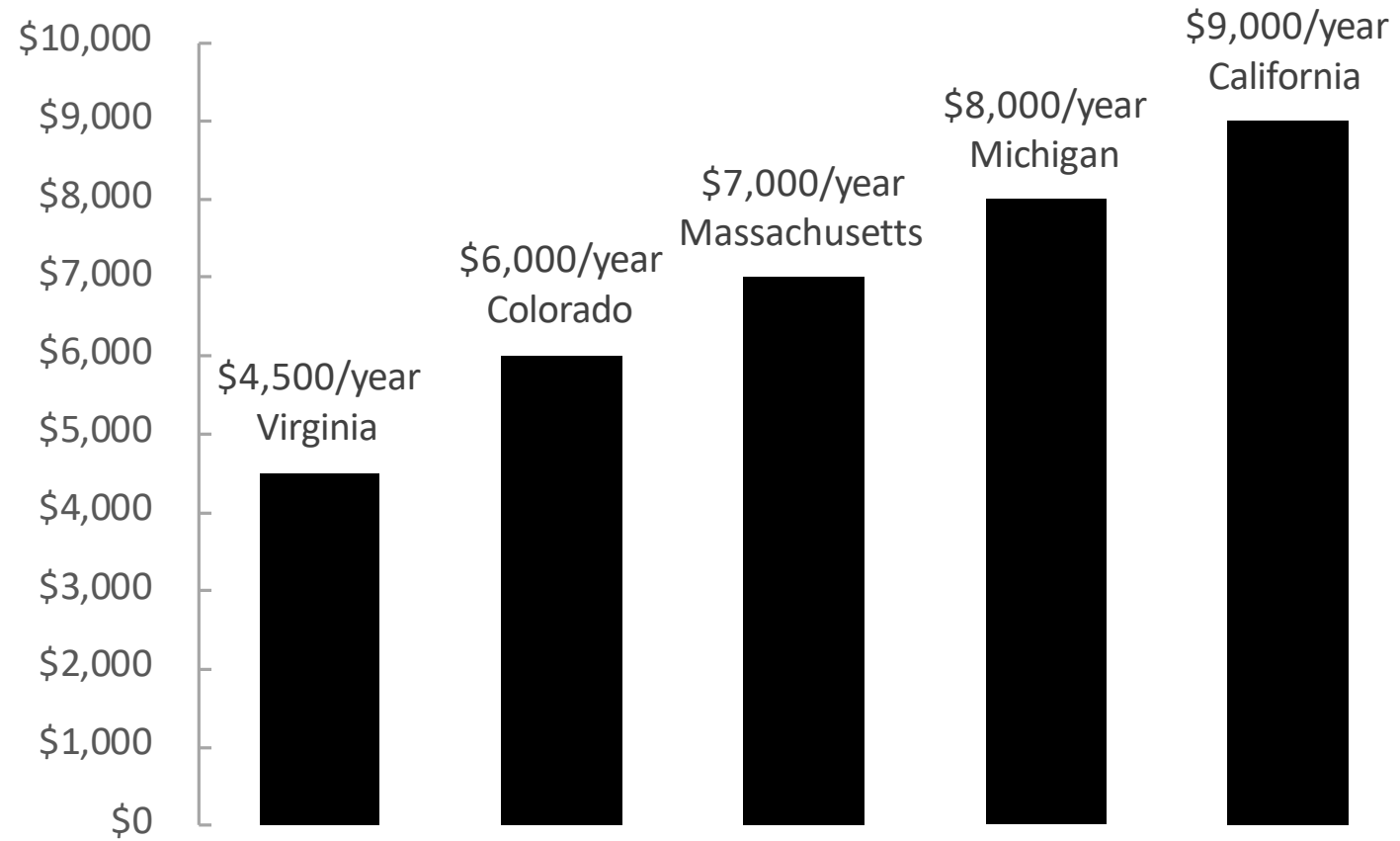
## RENEWABLE ENERGY OPTIMIZATION

- charge during high renewable energy generation and low demand.
- discharge stored renewable energy when renewable generation is low





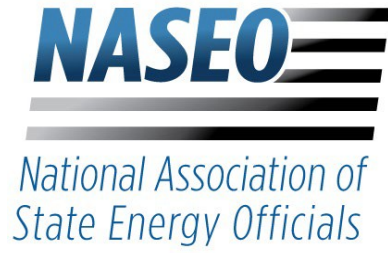
# FERMATA PRO FORMA OPERATING RESULTS





Cassie Powers  
CPowers@naseo.org  
703-299-8800

- Managing Director for Programs at the National Association of State Energy Officials (NASEO)
- Leads program staff covering regional coordination, state energy planning, transportation policy, and other initiatives
- In addition, provides research, analysis, and facilitation support for state energy offices on transportation and clean energy issues, and acts as a resource on state, local and federal transportation policies
- Prior experience as an Electric Vehicle Program Coordinator with Georgetown Climate Center
- Master of Urban and Environmental Planning from the University of Virginia, and a BA from the College of William and Mary



## Alternative Fuel Vehicles: Building Community Resilience

Cassie Powers  
NASEO  
November 4, 2020



## + About NASEO

- Formed by the states in 1986
- Membership includes the 56 Governor-designated energy policy officials from each state and territory, as well as private sector affiliates
- Facilitates peer learning across states to improve the effectiveness of energy programs and policies
- Serves as a resource for and about State and Territory Energy Offices
- Advocates on behalf of the State Energy Offices with Congress, federal agencies, and private-sector organizations
- Works through topical committees to facilitate peer learning across states to improve the effectiveness of energy policies and programs
- Visit [www.naseo.org](http://www.naseo.org) for more information



# + EVs in Emergencies

- Electric Vehicles (EVs)
  - Energy can be exported to power emergency response systems
  - Can be driven to locations where power is needed
  - May be easier to find electricity than gasoline
- Portland Gas and Electric Uses PHEVs to Export Power
  - PHEV trucks specifically designed to export power
  - Used to power emergency shelter and other locations



# + NGVs in Emergencies

- Natural Gas Vehicles (NGVs)
  - Access to established infrastructure network
  - Natural gas supplied via underground pipeline, which can be more resilient
  - Bi-fuel NGVs can run on two separate fuels
- City of Denver CNG Garbage Trucks and Buses
  - Diversified fleet allows continuous delivery



Photo by Dennis Schroeder, NREL, 48743  
Photo by Trish Cozart, NREL, 17045

# + Biodiesel Vehicles in Emergencies

- Biodiesel (BD) Vehicles
  - Can be used in existing diesel engines
  - On-site storage tanks can provide fuel to fleets during disasters
  - Readily accessible alternative for heavy-duty fleets
  
- BD Fleets & Emergencies
  - BD vehicles used for snow removal and other emergency services
  - City-owned BD tanks can provide fuel to public and private fleets during fuel shortages



Pat Corkery, NREL, 18131  
PhoPat Corkery, NREL, 18117

# + Propane Vehicles in Emergencies

- Propane Vehicles
  - Mobile fueling capability allows fuel to be delivered to remote areas
  - Widely available infrastructure network
  - Less susceptible to spills and contamination
  - Easily stored and accessed
- Propane and Emergencies
  - Increasingly used by school buses and other “people movers”

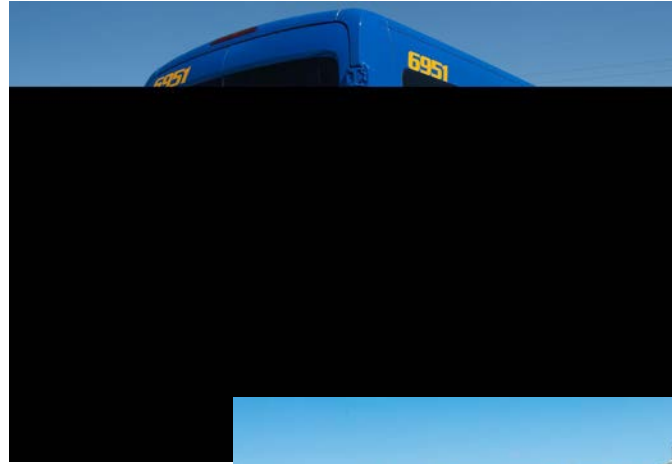
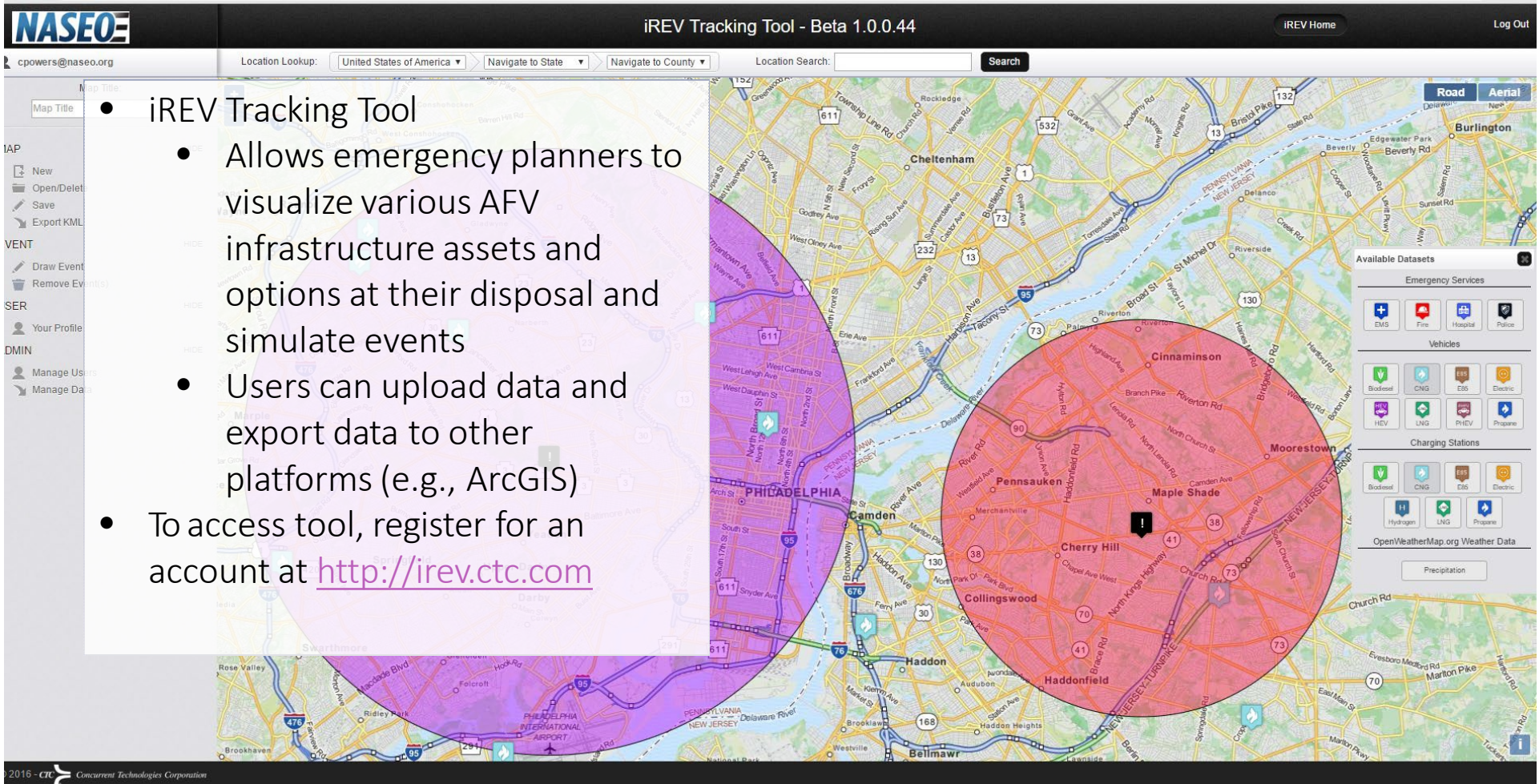


Photo by Werner Slocum, NREL 57368  
Photo by Dennis Schroeder, NREL, 39805

# + Resources for Fleets, Policymakers and Emergency



The screenshot displays the iREV Tracking Tool interface. At the top, the NASEO logo is on the left, and the title "iREV Tracking Tool - Beta 1.0.0.44" is centered. On the right, there are links for "IREV Home" and "Log Out". Below the title bar, there is a "Location Lookup" section with dropdown menus for "United States of America", "Navigate to State", and "Navigate to County", along with a "Location Search" input field and a "Search" button. The main area is a map of Philadelphia and the Delaware Valley region, showing various colored overlays representing different data layers. A sidebar on the left contains a "Map Title" input field and a menu with options like "New", "Open/Delete", "Save", "Export KML", "Draw Event", "Remove Event", "Your Profile", "Manage Users", and "Manage Data". On the right side of the map, there is a panel titled "Available Datasets" with sections for "Emergency Services" (EMS, Fire, Hospital, Police), "Vehicles" (Biodiesel, CNG, E85, Electric, HEV, LNG, PHEV, Propane), "Charging Stations" (Biodiesel, CNG, E85, Electric, Hydrogen, LNG, Propane), and "OpenWeatherMap.org Weather Data" (Precipitation).

- iREV Tracking Tool
  - Allows emergency planners to visualize various AFV infrastructure assets and options at their disposal and simulate events
  - Users can upload data and export data to other platforms (e.g., ArcGIS)
- To access tool, register for an account at <http://irev.ctc.com>

© 2016 - CTC Concurrent Technologies Corporation

# + Website and Contact Information

Thank You

<https://www.naseo.org/issues/transportation/resilience>

For more information on other resources, contact

Cassie Powers

[cpowers@naseo.org](mailto:cpowers@naseo.org)



Jesus Sosa

[jsosa@evstructure.com](mailto:jsosa@evstructure.com)

866-647-5638 ext 1

- Alternative Fueling Infrastructure Specialist for EvStructure
- More than 10 years industry experience
- Focused of the commercial trucking industry working with utilizes, major accounts and government agencies
- Current Chairperson for the California Trucking Association Los Angeles/Orange Unit



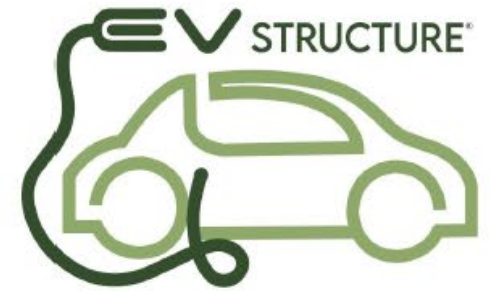


# 2020 through 2050 Hydrogen Roadmap

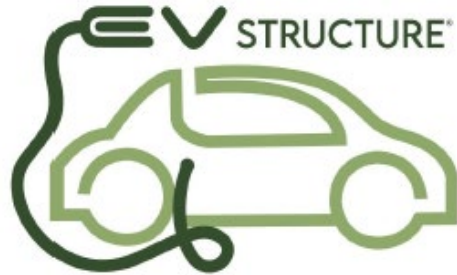


TOGETHER  
**POWER  
INNOVATIONS**

*Building a Safer & Greener Future*



**Leading the Renewable Revolution**



- **We are The Ev Structure Company** an independent authority on Electric Vehicle Service Equipment (EVSE) and Charging Station Electrical Infrastructures.
- Our current infrastructure and installation clients include property management, Car rental location, retail chains along with many auto makers. We understand all the components for detailed electrical planning, installation and service. We take "CHARGE" of all EV readiness programs with a "cradle to grave" plan.
- **We provide** expert advice and sourcing to the HOA, AOA, Multi Unit Dwelling Communities, Commercial, Retail, Public, Government and Residential EV Your resource for EV info including EV Charging Station options, acquisition, business models, policy, financial impact, tax and grant incentives and installation requirements for standard grid, smart grid and/or PV solar implementation with Solar Car Port Structures.



Who  
We Are



**POWER  
INNOVATIONS**

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*Building a Safer & Greener Future*

Power Innovations is a technology company developing, integrating, and producing leading power solutions for total Power Independence (generation, storage, and management). The company's solutions address scalable traditional, as well as renewable and zero carbon solutions, for commercial, critical, and rugged needs. Power Innovations is a pioneer in advanced scalable hydrogen and battery solutions that span a broad spectrum of applications.

# Spanning the Application & Infrastructure Gap

Moving from Theory to Application: Industry Involvement

## Power Innovations' Leadership and Professional Influence

- US Hydrogen Roadmap Research / Study Team
- US Hydrogen Roadmap Steering Committee
- FCHEA Director
- FCHEA Chair for the Stationary Power Subcommittee
- Center for Hydrogen Safety (CHS) Member
- Department of Energy's Hydrogen & Fuel Cell Technical Advisory Committee (HTAC) (*Appointment Only by the DOE / Reports to the Secretary of Energy*)
- Intermountain Western Alternative Fuel Corridor
- New Zealand Hydrogen Association

### Other Members of the Roadmap Team



# A Clean, Safe, Scalable, and Exciting Future

## Datacenters Powered by Fuel Cells



## Public Safety Mobile Operations powered and Managed by Fuel Cells



## H2 for Mass Transit, Logistics, Office, Retail



## Temporary Fuel Cell Generators



- Fleet EV Fast Charging via HFCs
- H2 for Hydrogen Fleets



## H2 Clean Commercial and Retail



## Gardens & Parks become Power Plants for communities

Fuel Cells & Electrolyzers



## H2 Smart Homes & Micro-Grid Communities



- Power
- Heating
- Cooling
- Electrolyzing

## Clean & Renewable Generation of H2



- Solar
- Wind
- Hydro
- Green Grid
- Reforming

## Fuel Cells for Mobile Retail & Commercial



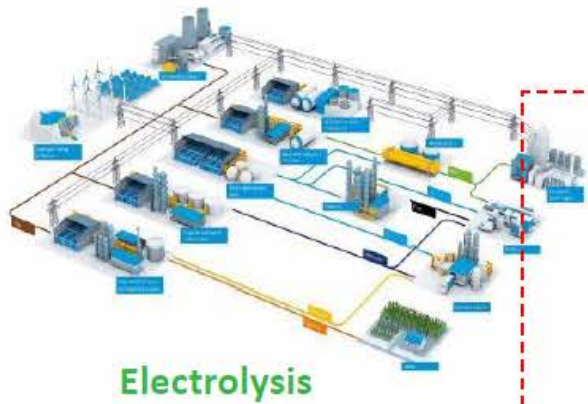
## Safe Transport of high capacity High Density H2



- 300 – 600 kg
- 350BAR-700BAR

## Hydrogen & EV Service Stations





**Compressed Gas**



**Reforming**



**Compressed Gas**



**Liquid**



**Compressed Gas**



**Liquid**



**Compressed Gas**

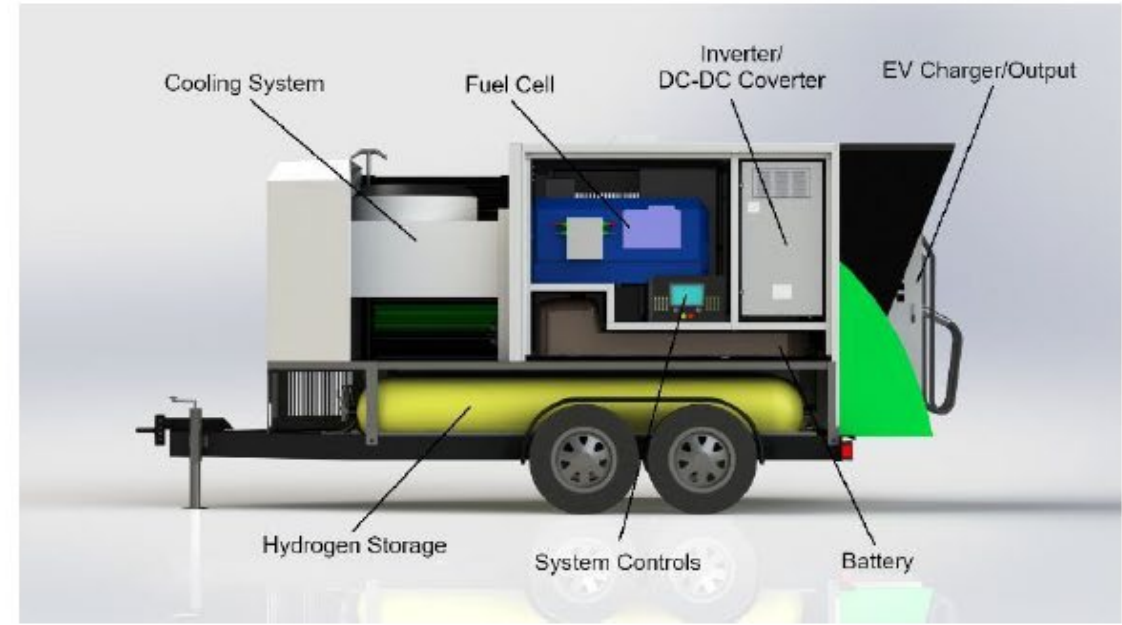


**Liquid**



**1/4 MW Fuel Cell Configuration**

# Towable / DC Fast Charge BEV and Backup Power Concepts

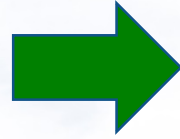


- 80kW FC System
- 30kg to 50kg of H<sub>2</sub>
- 180kWh Battery Storage
- DC Fast Charger Option
- Parallelable to 300kW
- H<sub>2</sub> Port for extended runtimes

# Large Scale Mobile Power

## MEC- Mobile Energy Command

- 175 kW DC fast charging
- 320 kW inverter
- 210 kWh battery capacity
- 75 kVA generation



- 350 kW DC fast charging
- 400 kW inverter
- 300 kWh battery capacity
- 400 kVA H2 generation



Powering the Future Today & Tomorrow





# Mobile Power

## M-SOC Mobile Special Operations Command

The M-SOC will provide all of the items necessary for base camp support including lighting, logistical tools and cabling.

Power Innovations will capture renewables by day and power base camp by night by deploying integrated green power solutions – including our Nexus, Gateway Liberty, and Gateway Lites, and Gateway Minis.

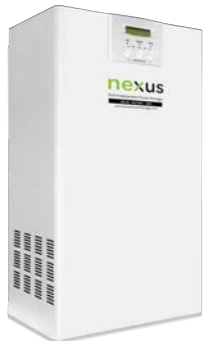
### Power..

- Total system capability 55.25kW
- Total Battery storage 49.36kW
- Total Solar 14.1kW



Figure 2: The Mobile Energy Command - AMES Power Station

### Nexus



### Gateway Liberty



### Gateway Lite



### Gateway Mini

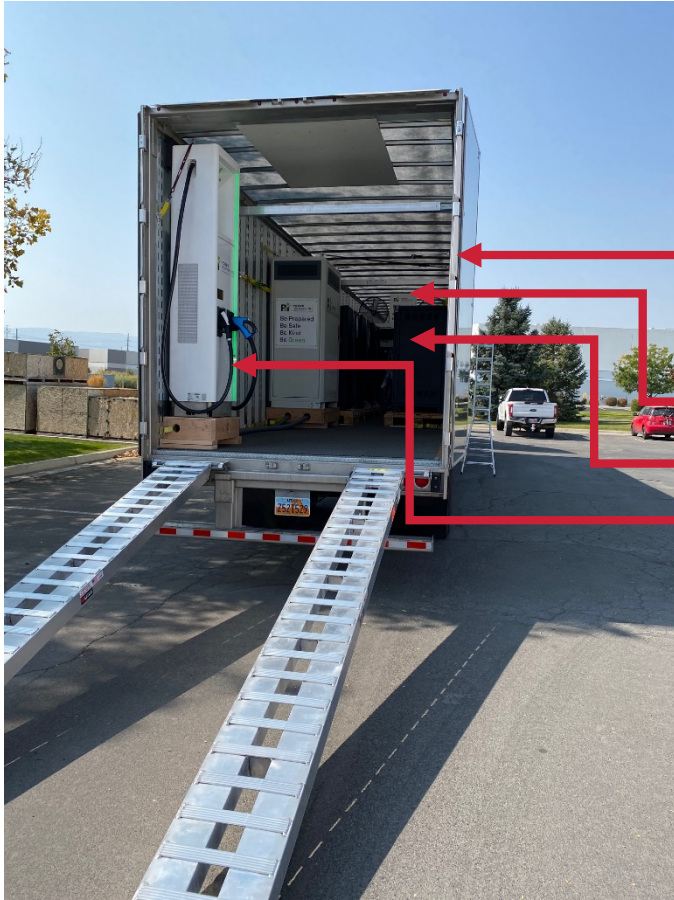


Powering the Future Today & Tomorrow



# Large Scale Mobile Power

## MEC- Mobile Energy Command



- Generation
- 320kW Inverter
- 250kWh Battery
- 175kW Charger



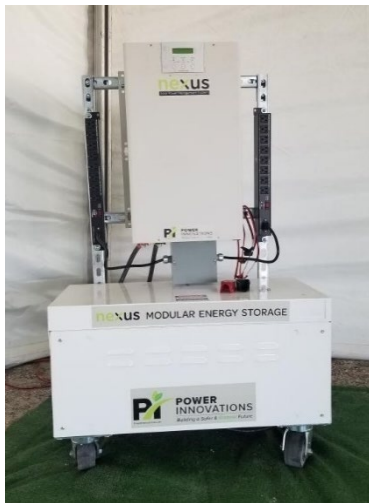
# Large Scale Mobile Power

## MEC- Mobile Energy Command & M-SOC at Basecamp 1 – Setup Day



# Rebelle Rally – Preparation Day

## The Fun Begins – Power Infrastructure Setup - Basecamp 1 – Setup Day

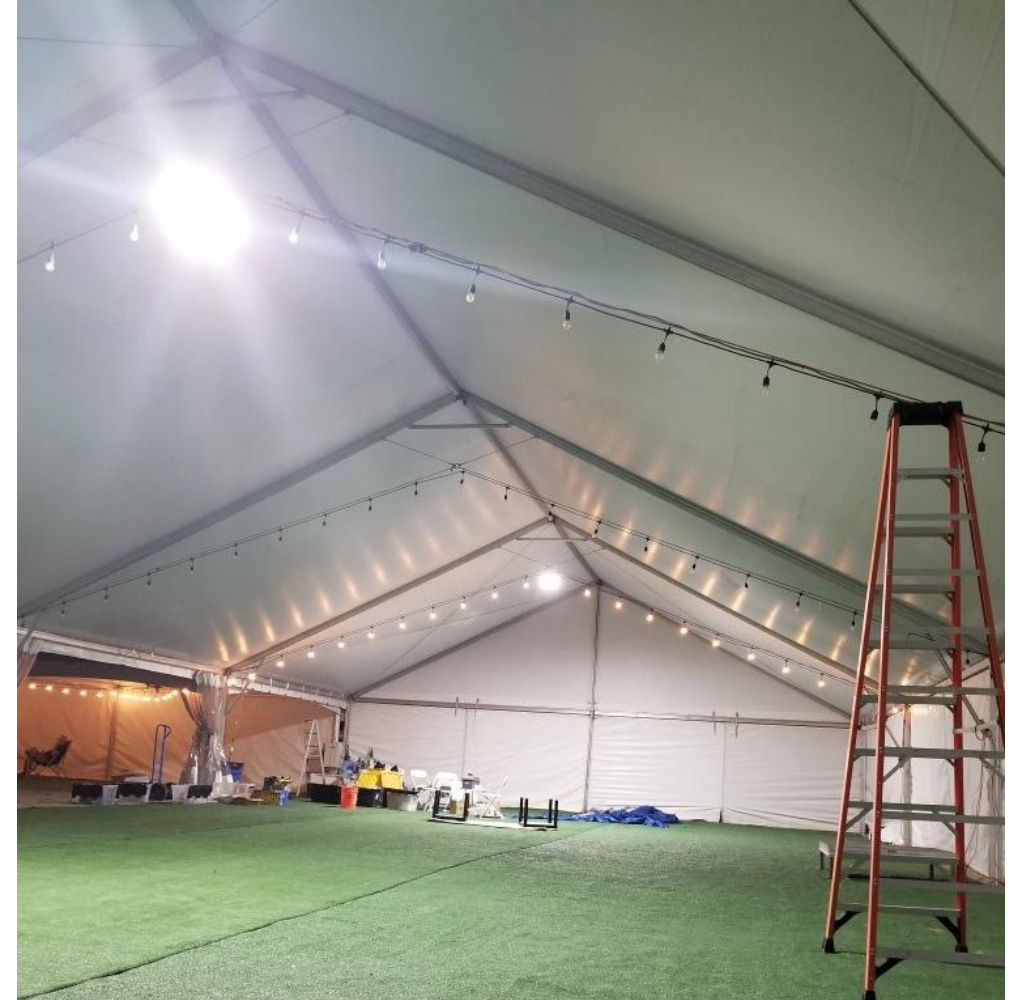


Powering the Future Today & Tomorrow



# Rebelle Rally – Preparation Day

## When Night Falls Lighting up the Desert with Renewables Basecamp 1 – Setup Day



# Rebelle Rally – Preparation Day





**Contact:**

**Master Distributor & Engineering Service Partner's**

**The EvStructure Co. LLC**

**Mr. Jesus Sosa MBA**

**Email: [Jsosa@evstructure.com](mailto:Jsosa@evstructure.com)**

**Ph. 866.647-5638 Ext. 1**

**TOGETHER SOLVING THE QUESTIONS OF NET ZERO TRANSPORTATION**



**Pete Morano**

**[pmorano@sjindustries.com](mailto:pmorano@sjindustries.com)**

November 4, 2020

# SJG Resiliency- Transportation Fueling



# South Jersey Gas - Service Territory

- 400,000 + Customers
- 7 Counties & 117 Municipalities
- 5,500 Miles of Pipe
- CNG Fleet Integration Since 2012



# South Jersey Gas – System Resiliency

- SJG is committed to providing safe, reliable & resilient gas service to homes and business.
- Ongoing Storm Hardening And Reliability Program (SHARP).
  - Focused on replacing low pressure services and mains with high pressure, modern systems for coastal service areas to reduce water intrusion.
  - Highlights include 4 large scale system enhancement projects and 3 looping projects for our barrier island customers.



# CNG Stations Locations

- Public access CNG fueling infrastructure in and around New Jersey.
- All CNG stations in Southern NJ have NG backup generators.
- SJG's station design has an automatic switch, firing the genset at a loss of grid power.
- SJG's natural gas system had nominal damage during seasonal hurricanes and Superstorm Sandy.

## Fuel Your Natural Gas Vehicles



# SJG CNG Station Design- Always Turned ON

- All CNG stations are connected to our NG system which is very rarely down.
- Our system was operating normally during seasonal storms and Superstorm Sandy
- CNG station design for all SJG owned/operated stations have 400KW Natural Gas fueled backup generators
- Our Lindenwold and Swainton and Union NJ stations have time fill hoses, capable of filling tube trailers for Virtual Pipeline operations.
- Virtual Pipeline operations have utilized SJG behind the fence infrastructure to supply other utilities for 'degree days' and off system customers.

Atlantic City  
*always turned on*™



# Station Design – Resiliency Required

Two 300HP Compressors

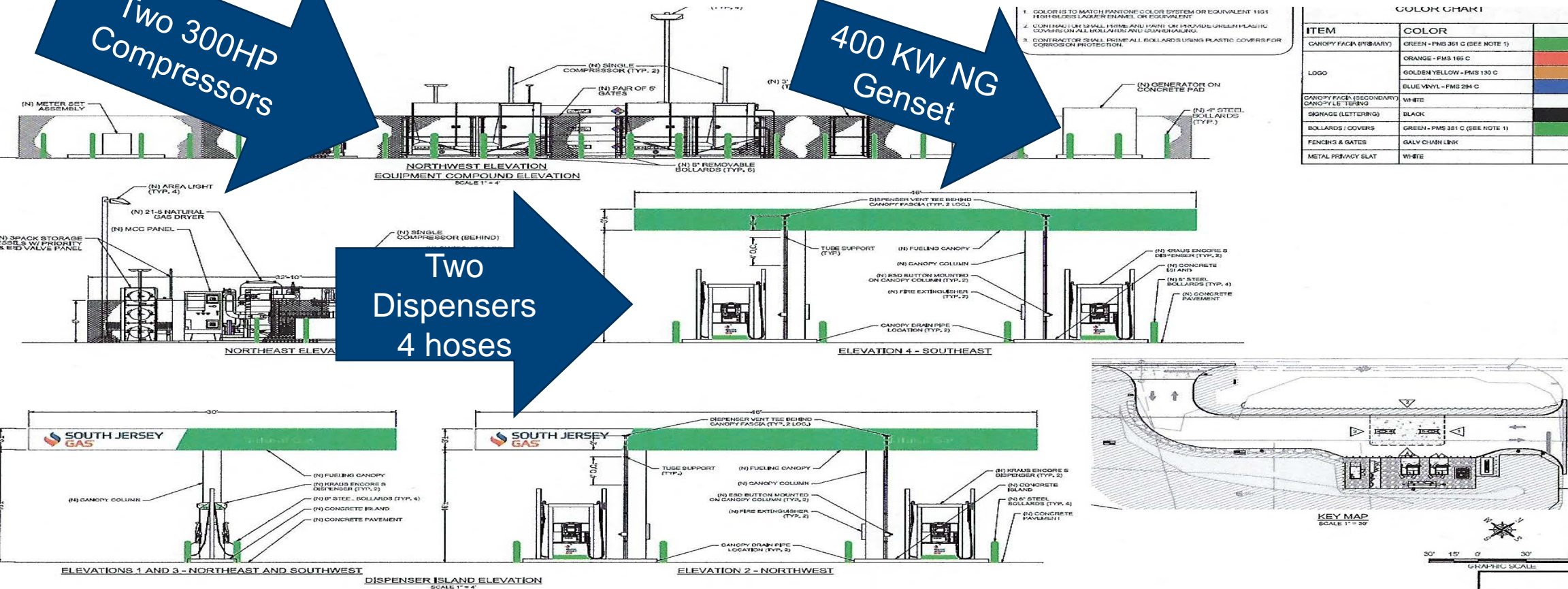
400 KW NG Genset

Two Dispensers  
4 hoses

- COLOR IS TO MATCH RANTONE COLOR SYSTEM OR EQUIVALENT 1105 HIGH GLOSS LAQUER ENAMEL OR EQUIVALENT
- CONTRACTOR SHALL PRIME AND PAINT UP PROVIDED GREEN PLASTIC COVERS ON ALL BOLLARDS AND GUARDRAILING
- CONTRACTOR SHALL PRIME ALL BOLLARDS USING PLASTIC COVERS FOR CORROSION PROTECTION

COLOR CHART

| ITEM   | COLOR                          |  |
|--|--------------------------------|--|
| CANOPY FACIA (PRIMARY)                       | GREEN - PMS 361 C (SEE NOTE 1) |  |
|  | ORANGE - PMS 165 C             |  |
| LOGO   | GOLDENYELLOW - PMS 130 C       |  |
|  | BLUE VINYL - PMS 294 C         |  |
| CANOPY FACIA (SECONDARY)<br>CANOPY LETTERING | WHITE                          |  |
| SIGNAGE (LETTERING)                          | BLACK                          |  |
| BOLLARDS / COVERS                            | GREEN - PMS 361 C (SEE NOTE 1) |  |
| FENCING & GATES                              | GALV CHAIN LINK                |  |
| METAL PRIVACY SLAT                           | WHITE                          |  |



**Clean Energy**

**Pennoni**

GENERAL ARRANGEMENT & ELEVATIONS

CS1601

DATE: 08/28/2014

DESIGNED BY: HJA

CHECKED BY: HJA

APPROVED BY: HJA

SCALE: AS NOTED

SHEET: CS1601

DATE REVISION: 08/28/2014

REVISIONS:

1. 08/28/2014 HJA

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# SJG CNG Design – Redundancy is a Priority

- All SJG owned & operated stations are built with two of everything.
- With dual compressors and dispensers, no station has been completely down more than 48hrs since 2012. This equates to an uptime average of 98%.
- Stations were built strategically within a 10 miles radius of each other, in case a specific facility needed to be down for maintenance or unforeseen equipment failure



# Super Storm “Sandy” – Lessons Learned



As weather events become more severe:

- Always on transportation fuel becomes more than a want, but a need for public safety.
- The AC Jitney buses were a critical partner to Emergency Management during Sandy, as no gasoline or diesel was available for a week or more.
- Jitneys evacuated barrier island communities that otherwise would have been stranded.



# Resilient CNG Stations Offer:

- A primary source for vehicle fueling even when the electric grid is down.
- Secondary source of fuel supply during emergencies, via tube trailers/virtual pipelines.
- Supplemental gas supply for to satisfy 'degree day' utility's system peaking.
- Supply transportation fuel for critical public safety and service functions with 98% reliability, even in an emergency.
- Environmentally friendly when dispersing Renewable Natural Gas – as SJG presently provides at its O/O stations.





# BEAM



Desmond Wheatley

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[BeamForAll.com](http://BeamForAll.com)

- President, CEO & Board Chairman Beam Global
- 20 years executive experience from start-ups to publically traded companies

***BEAM***



**EV ARC™ 2020**

World's Fastest EV Charging Deployment

# Get the EV Charger of Your Choice, Deployed in Minutes not Months



**No Permitting**



**No Construction**

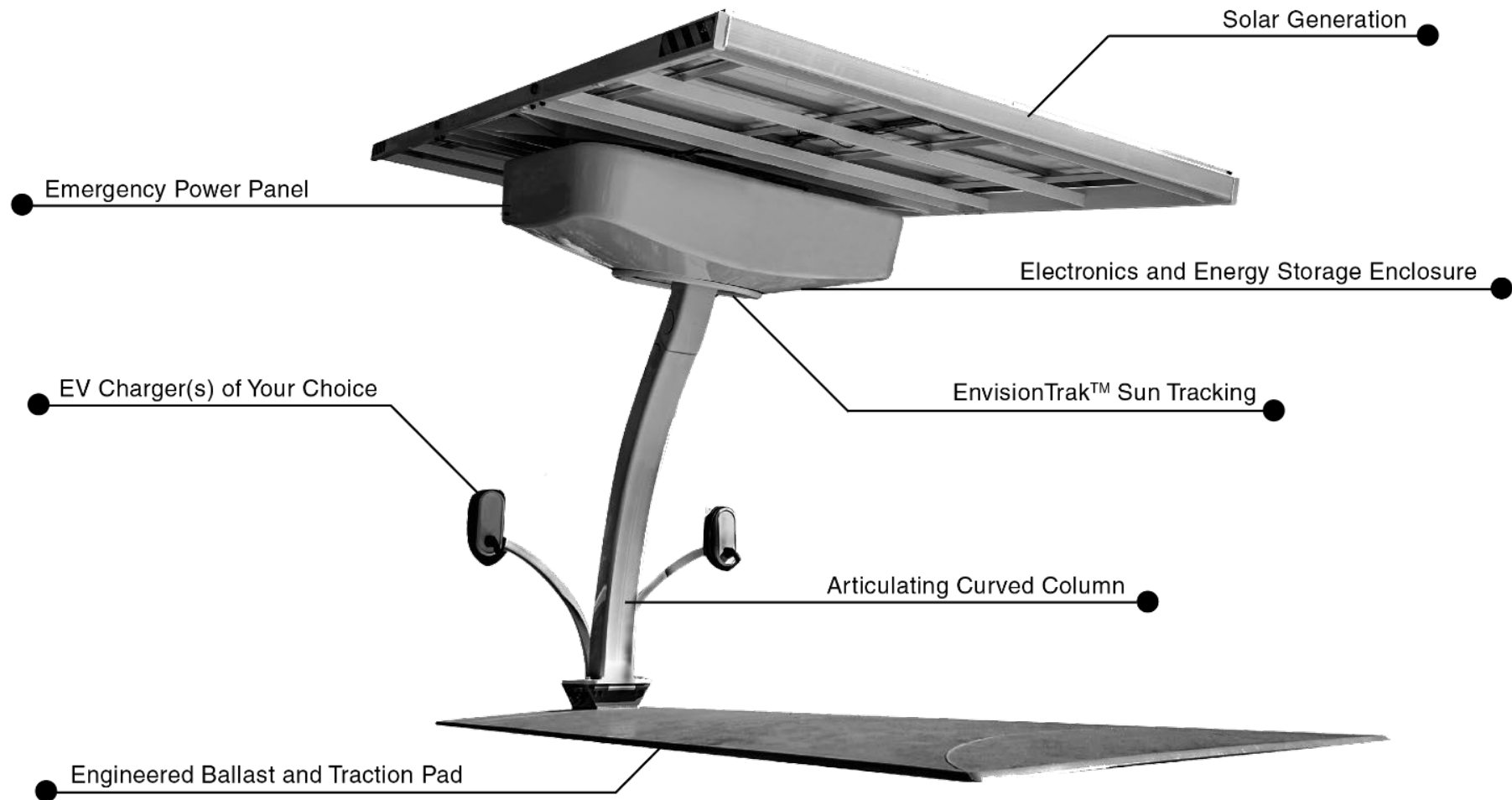


**No Electrical Work**



**No Utility Bill**

# EV ARC™ 2020



# Installing Grid-Tied EV Charging Includes

- Engineering
- Construction
- Trenching
- Foundation
- Permitting
- Electrical circuit work
- Project management
- Transformer / switchgear upgrades
- Utility metering / monthly bills
- Utility interconnect agreements
- Demand charges
- Carbon Footprint



# EV ARC™ 2020

## Solves Your Problems

### No Permitting, No Construction, No Utility Bill

- Fastest and easiest to deploy solution on the market
- The EV charger and service of your choice
- Deploys in minutes, zero-contact delivery
- Avoided costs = Lowest total cost of ownership (TCO)
- Transportable
- Off-grid EV charging and emergency power
- Highly visible sustainability initiative
- Drive on sunshine



# EV ARC™ 2020

## Transportability = Flexibility

**Drop and charge. Can be moved any time.**

- Permanent yet transportable
- Scalable
- Can be moved short distances with a forklift
- Can be moved longer distances with the ARC Mobility™ Trailer, truck or in a 20 ft. container
- Ideal for leased or owned properties



# BEAM in Action





# EV ARC™ 2020

## Off-Grid Emergency Power

### Energy when and where you need...

- Charge during blackouts, utility outages, weather events
- Relocate to high risk locations, hospitals, shelters...
- Wind-rated up to 120mph
- Flood-proof up to 9.5 feet
- Working asset during prosperity and emergencies
- Integrated emergency power panel



# Emergency Preparedness for First Responders

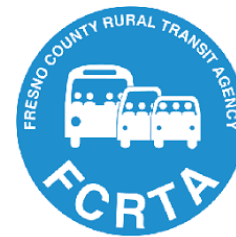
## EV charger becomes a lifesaver

- Generators sit idle in storage most of the time
- Renewable power: No refueling
- Clean power: No toxic emissions
- Quiet power: No disruption for medical staff or patients
- Safe power: No volatile fuel to transport or store
- Included in FEMA's Authorized Equipment List (AEL)\*

*\* Envision Solar EV ARC™ solar-powered charging stations are included in the FEMA Authorized Equipment List, under designation 10BC-00-SOLR Chargers.*



# Our Customers Have a Lot to Beam About



***BEAM***



**Drive on Sunshine!**

**Thank You**

BeamForAll.com





April Groover Combs  
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850-617-7477

- Senior Management Analyst in the FLDACS OOE
- Guides legislation and policy, as well as strategic planning
- More than 15 years experience working with stakeholders across the state to promote and advocate for renewable energy and energy efficient technologies
- Prior experience with the FL Energy Commission and the FL Senate
- BA in English for Florida State University, CPM from Florida Center for Public Management at Florida State University
- Currently pursuing JM in Environmental & Land Use from Florida State College of Law



# FDACS OOE

## Functions & Responsibilities

- Legislatively designated state energy policy development office within Florida
- Evaluate energy related studies, analyses, and stakeholder input
- Promote and advocate for the development and use of renewable energy resources, energy efficiency technologies, alternative fuels, and alternative vehicle technologies
- Use available state and federal funds to develop and manage energy efficiency, renewable energy, energy education, alternative fuels and alternative vehicle technologies programs
- Produce an Annual Energy Report
- Serve as the State clearinghouse for all energy information



# Alternative Fuel Resiliency Plan

- Develop communication protocols for alternative fuel infrastructure status updates;
- Study the supply chain for each fuel source to identify strengths and weaknesses;
- Develop a statewide alternative fuel resiliency plan;
- Incorporate alternative fuel related missions into the annual statewide hurricane exercise;



# Alternative Fuel Resiliency Plan

- Catalog alternative fuel infrastructure including details on each site;
- Develop best practices regarding resiliency for locating alternative fuel infrastructure;
- Analyze and report on AFVs for emergency response efforts; and
- Analyze and report on alternative fuel generators for emergency power sources.





# SB 7018 – Essential State Infrastructure

- Instructs FDOT, FPSC, and FDACS OOE to coordinate, develop, and recommend a master plan for current and future development of EV charging infrastructure along the state highway system.
- Interim Report is due December 1, 2020
- Final Report is due July 1, 2021



# EV Roadmap Goals

- Identify EV charging infrastructure impacts on the electric grid;
- Identify solutions for any negative impacts;
- Locate areas that lack EV charging infrastructure;
- Identify best practices for siting EV charging stations; and
- Identify technical or regulatory barriers to expansion of EV charging infrastructure.



# EV Roadmap

- Continue discussions with sister agencies and solicit input from stakeholders
- Published four interim reports
  - Future Infrastructure
  - EV Infrastructure Models
  - Emergency Evacuation Routes
  - EV Deployment Recommendations
- Final Report on December 31, 2020



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