

RENEWABLE ENERGY SUMMIT 2019

Electric Vehicles

01.17.2019

Monona Terrace and Convention Center • Madison, WI





Jane McCurry
Program Manager
jane@renewwisconsin.org





Electric Vehicles Match RENEW's Mission

Not only are EVs fun to drive, but they represent a huge opportunity to decrease fossil fuel use and increase renewable energy production in Wisconsin. If cars run



Our Vision for a "Powered Up" Dane County

by Jane McCurry | Dec 3, 2018 | Electric Vehicles, Jobs, Programs, Renewables, Solar, Sustainability

Electric Vehicles Match RENEW's

Not only are EVs fun to drive, but they represent a h
fossil fuel use and increase renewable energy produ

Over the past three months, RENEW Wisconsin has been participating in an exciting and audacious challenge to develop ways to bolster the middle class of Dane County. UW-Madison was selected as one of four universities nationally to participate in a competition sponsored and funded by the Schmidt Futures Foundation, led by Google's former CEO Eric Schmidt. UW's program is called "Dream Up Wisconsin."



Our Vision f

by Jane McCurry | De



RENEW Wisconsin Electric Vehicle Blog: Racine Getting Electric Buses

by Jane McCurry | Dec 14, 2018 | Electric Vehicles

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"Dream Up Wisconsin."

Racine is set to get 6 new electric buses!

A few weeks ago I posted a [Volkswagen Settlement blog](#), in which I reviewed the
Volkswagen Settlement and how Wisconsin allocated two-thirds of our settlement



Electric Vehicles Match RENEW's

Not only are EVs fun to drive, but they represent a huge opportunity to reduce fossil fuel use and increase renewable energy production.



Our Vision for

by Jane McCurry | Dec 14, 2018 | Electric Vehicles

Over the past three years, we've been hearing about exciting and audacious goals for Dane County. We want to participate in a community foundation, led by Google's former CEO Eric Schmidt. "Dream Up Wisconsin."



RENEW Wisconsin Electric Buses

by Jane McCurry | Dec 14, 2018 | Electric Vehicles

Racine is set to get 6 new

A few weeks ago I posted a Volkswagen Settlement and how Volkswagen is set to get 6 new



RENEW Wisconsin Electric Vehicle Blog: The "Volkswagen Settlement" – A Big Opportunity for Electric Vehicles

by Jane McCurry | Oct 22, 2018 | Electric Vehicles

ELECTRIC VEHICLES ARE A “WIN” FOR ALL STAKEHOLDERS.



Dan Steinhardt
Arch Electric EV



Mike Cornell
Arch Electric EV



Mahanth Joishy
City of Madison



Becky Cooper
Bounce Milwaukee

City of Madison: Greening the Fleet

*Thursday, January 17, 2019
Renewable Energy Summit*





SHARE



SHARE



TWEET



COMMENT



EMAIL

ERIC HOLTHAUS SCIENCE 09.08.18 07:00 AM

WISCONSIN'S FLOODS ARE CATASTROPHIC—AND ONLY GETTING WORSE



STEVE APPS/WISCONSIN STATE JOURNAL/AP

This story originally appeared on [Grist](#) at

Ambient LED
Basking
driving

Record Rain in Madison is What Climate Change Looks Like – Especially in Midwest

August 22, 2018 Adam Hinterthuer 22 Comments



ELECTRIC VEHICLES WORK

- In 2018, Madison purchased its first 3 electric cars ever: Chevy Bolts
- 238 mile range
- MG&E grant match provided electric charging stations
- Low maintenance
- Fuel savings
- Zero emissions



407 US CITY MAYORS AGREE TO TAKE ACTION ON CLIMATE CHANGE: JOINT EV RFI



BIODIESEL PILOT 2018

- In April 2018, Fleet Service introduced biodiesel blends of B5 (5% biodiesel) and then B11 (11% biodiesel) at fuel locations without any operational impact.
- We anticipate about 1 million lbs. of CO₂ reduction over 1 year



HYBRID CARS

- In 2018, 6 hybrid Ford Fusions were purchased for Madison Police Department detectives. More are on the way for multiple agencies.
- Fuel efficiency went from 18 MPG to 43 MPG per car
- We are planning to purchase the first hybrid squad cars in 2019.



ANTI – IDLING TECHNOLOGY

- In 2018, Madison purchased its first two ambulances with anti-idle technology in a Fire Department-Fleet partnership.
- This allows ambulances to continue working off an electrical system while the engine shuts off.
- Anti-idling technology is better for the environment by reducing air pollution and noise pollution. Engine maintenance also improves.
- Fuel savings are also achieved of up to 40%.



IMPLEMENTING COMPRESSED NATURAL GAS (CNG) VEHICLES

- Fleet is currently working with Streets to spec out the first group of heavy duty CNG trucks for 2019
- City of Madison has met with Dane County officials to discuss fueling at the renewable CNG station- landfill methane



GPS SYSTEM AND TRACKING

- In Fall 2018, Public Works agencies will be outfitted with GPS tracking devices that will provide detailed reporting for fuel savings :

- 1) Routing
- 2) Idling
- 3) Speeding
- 4) Hard Breaking
- 5) Hard Acceleration





MAINTENANCE

Madison to Build \$32.8M Consolidated Fleet Facility

September 7, 2018



- Featuring: Solar panels, solar heating wall, CNG repair bays, electric vehicle chargers, natural lighting
- Goal of LEED Silver certification

EDUCATIONAL INITIATIVES

- High school apprentices
- Training HS and MATC students on sustainability technology
- Tours of Fleet
- Tours of all 4 area high schools with automotive tech programs
- Donations of used/old equipment
- Focus on EVs and sustainability



WORKING TOGETHER WITH AREA TRANSPORTATION PROFESSIONALS



WHO WILL LEAD?

https://www.reuters.com/article/us-denmark-autos/denmark-embraces-electric-car-revolution-with-petrol-and-diesel-ban-plan-idUSKCN

ENVIRONMENT OCTOBER 2, 2018 / 4:40 AM / A MONTH AGO

Denmark embraces electric car revolution with petrol and diesel ban plan

2 MIN READ

COPENHAGEN (Reuters) - Denmark has proposed a ban on the sale of new petrol and diesel cars from 2030 and hybrid from 2035, joining international efforts to promote electric-only vehicles to reduce air pollution and combat climate change.

CNN BUSINESS Markets Tech Media Success Perspectives Video

Future Tense

India to sell only electric cars by 2030

by Jackie Wattles @jackiewattles
June 3, 2017, 5:22 PM ET



Harnessing India's sunny days for power

While the United States is walking away from the historic Paris Climate Agreement, India is making a bold vow to start selling only electric cars by 2030.

NYC Citywide Administrative Services Fleet

NYC FLEET NEWSLETTER

Bill de Blasio, Mayor
Lisette Camilo, DCAS Commissioner
Keith T. Kerman, Chief Fleet Officer


MARCH 28, 2018

ISSUE 217

FLEET INSTALLS 500TH EV CHARGER, 37 SOLAR CARPORTS

On March 28, DCAS Commissioner Lisette Camilo, NYC Chief Fleet Officer Keith Kerman, and Assistant Principal James Barron cut the ribbon on the City fleet 500th electric charging station, which is also our 37th citywide solar carport. This completes the first phase of our solar carport initiative. The 500th charger is located at the Bronx Theatre High School at the JFK Campus.

NYC Fleet has been operating electric cars since the donation of Toyota Rav 4 EVs in 1998. These units were discussed in the



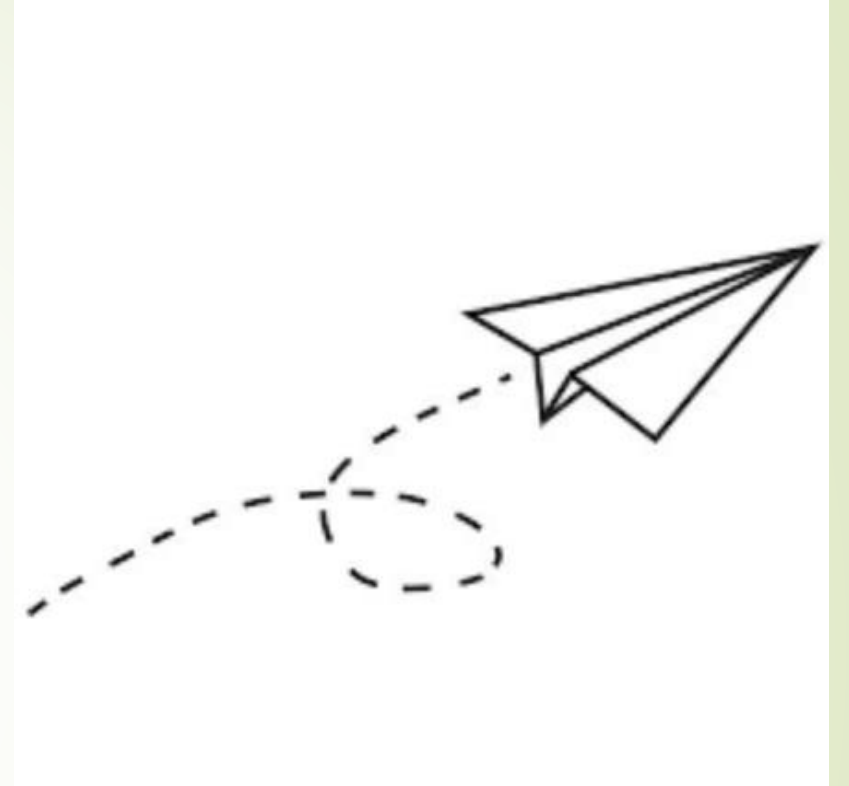
China's New Electric Car Rules Are Amazingly Aggressive

This is how you really get an industry to change its ways. Bloomberg reports that China's government has announced that any automaker producing or importing more than 30,000 cars in China must ensure 10 percent of them are all-electric, plug-in hybrid, or hydrogen-powered by 2019. That number will rise to 12 percent in 2020.

THE FUTURE



Contact

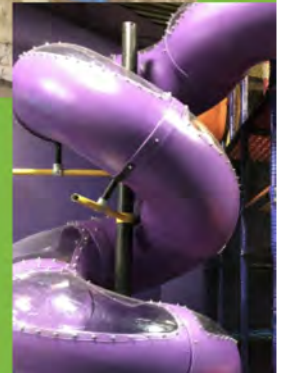


Mahanth S. Joishy, Fleet Service Superintendent

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BOUNCE MILWAUKEE



Our Values

- Family connections
- Progressive employment practices
- Local impact
- Environmental sustainability

Conventional Delivery

- Conventional Vehicles
 - Employee-owned, insured, maintained
 - High emissions, especially for frequent, short deliveries
- Unsustainable for employees
 - Drivers usually paid \$2.33/hr plus tips
 - Drivers responsible for gas, maintenance, insurance
 - High turnover among drivers, no reciprocity



Perceived Obstacles for Businesses Adopting EVs

- Initial costs of vehicles
- Training costs for workforce
- Infrastructure (chargers, etc)
 - Range anxiety!
- Ongoing costs (electricity, maintenance)

Ease of adoption for small businesses

- EVs are increasingly affordable
- Training costs are minimal, EVs and charging are intuitive (and fun)
- Public grants (and private funds) can be tapped for infrastructure like chargers and solar panels
- Maintenance costs far lower than conventional engines; Electricity (even from the grid) far cheaper than gas.

Why We Wanted EVs

- Environmental sustainability
- Fairness to employees
- Improved customer experience
- Economic efficiency
- Early adopter street cred

Our Solutions

- Infrastructure assistance
 - Focus on Energy assisted with a solar grant for our array
 - Tesla fully funded chargers, including one universal plug
- Purchased new and used Nissan Leafs (Leaves?)
- Capitalized on early adoption status to elevate our brand



CHARGING FOR YOUR ELECTRIC (OR PLUG-IN HYBRID) VEHICLE

ing and charging for your electric vehicle or plug-in hybrid. Simply pull your car in front of the lot, and they'll pull it around and charge it for you while you play, dine, or relax. We are a Tesla Model S (2014) as well as one SDA universal charger, all graciously provided and

sun, and the 120 solar panels on our roof. In part through a grant from Focus on Energy, we thankfully maintain that crispy energy monopolies like We Energies, which has done its "green" play into a fund which works against them. Anyway, thanks, Focus.

(7) We'll leave our chargers on for you anyway - they're located in the rear of the building. If we donate to the Midwest Renewable Energy Association, though, they'd appreciate it.



CO₂ SAVINGS TOTAL

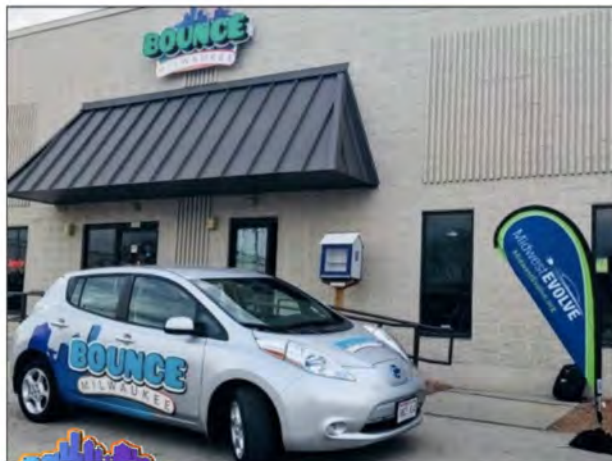


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Results

- Environmental impact
- Lower turnover/ more reliability
- Lower training costs
- Maintenance on vehicles near zero
- Better reviews on deliveries
- Earned media



Business Delivering Pizza in 100% Solar-Powered EVs



TESLA
ENERGY
CERTIFIED INSTALLER

chargepoint

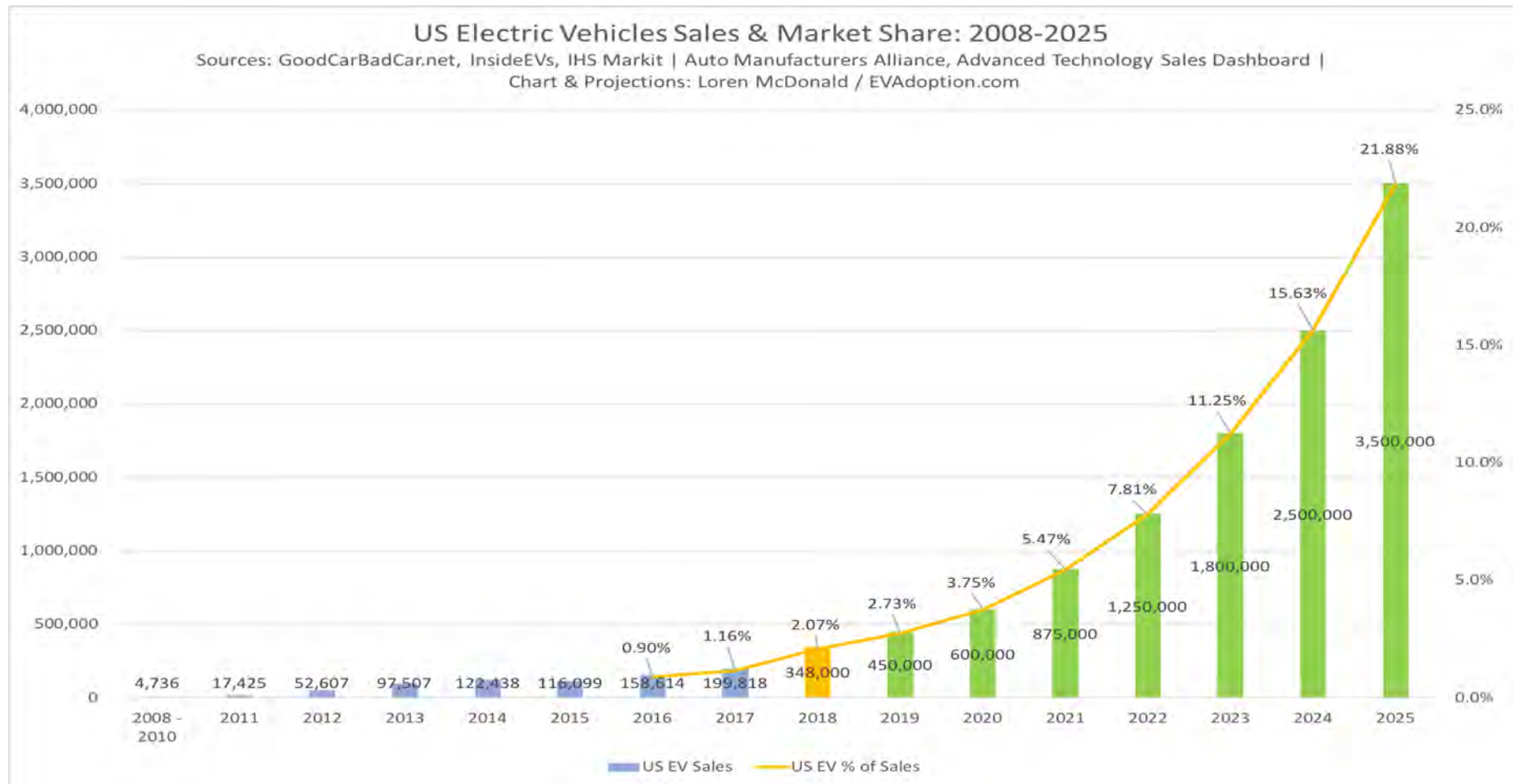


CLIPPERCREEK, INC.

solar**edge**

Mike Cornell, Director of Business Development
Dan Steinhardt, Certified Energy Manager

Current Landscape



Current Landscape

- DEFINITIONS: PLUG IN HYBRID EV (PHEV) AND BATTERY EV (BEV)
- TESLA AND CHEVY BOLT EXCEED 200,000 MILESTONE FOR TAX CREDIT
- \$7500 TO \$3750
- ALL TARGET STORES GETTING TESLA SUPERCHARGERS
- 78,000 + PLACES TO CHARGE vs. 150,000 + GAS OUTLETS
- 12 MODELS OF CARS MAKE UP 93% OF THE MARKET TODAY. OVER 30 BRANDS WITH 5-20 MODELS EACH.
- MASS ADOPTION EXPECTED BY 2025 -2040 – TONY SEBA, ELON MUSK
- CA EV MARKET SHARE OVER 9%, WI .48%
- VW PLANS \$800 MIL PLANT FOR EV PRODUCTION IN TN
- EV MARKET JUST OVER 2% TODAY

2018 Oil Industry Projection

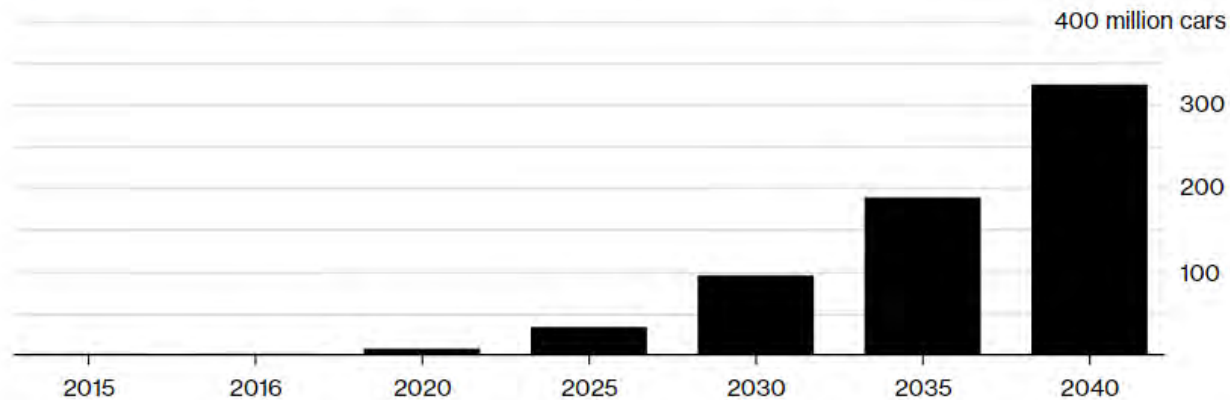
BloombergMarkets ▼

BP Sees Electric Future With Oil Demand Peaking in 2030s

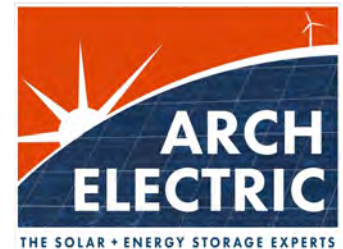
million by 2035, according to an energy outlook released Tuesday. It expects a third of the miles driven in 2040 will be powered by electricity.

Electric Future

BP expects there will be 180 million electric vehicles on the roads by 2035



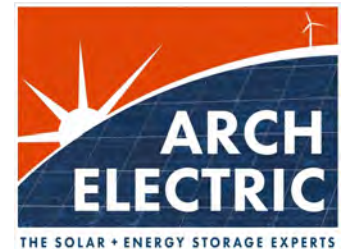
Source: BP



Utilities Provide Cash for Clean Cars



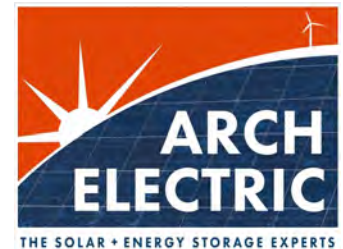
- Alliant Energy 2018 Residential EV Rebate Form
 - Offered \$500 New Electric Vehicle Purchase
 - Offered \$250 Used Electric Vehicle Purchase
 - Offered \$250 Electric Vehicle Level 2 Charger Purchase
 - **2019 rebate details and forms coming soon...**



EV Charging Options

Understanding Your Needs

- **Networked Charger Vs. Stand Alone Charger**
 - Do you want to collect fees for charging and change those fees over time?
 - YES or NO
 - Do you want to decide who can charge at your stations?
 - YES or NO
 - Do you want to see how your stations are doing at a glance?
 - YES or NO
 - Do you want to know who's using your stations?
 - YES or NO
 - Do you want to know how much energy you're using and set limits on energy use?
 - YES or NO



EV Charging Options

If you answered "YES" to the majority of those questions – ChargePoint Networked EV Chargers



Single Family Home



Home
Level 2
7.7 kW
25 RPH

Multi-Family, Fleet



CPF25
Level 2
7.7 kW
25 RPH

Commercial/Municipal, Mixed Use



CT4000
Level 2
7.7 kW
25 RPH

On-Route, Commercial



CPE100
24kW
100 RPH



CPE200
50kW
200 RPH



CPE250
62.5kW
250 RPH

Fast DC Chargers

Ultra-fast DC Chargers

Warning: Vehicle Connector Specific

EV Charging Options

If you answered “NO” to the majority of those questions – Clipper Creek/Tesla EV Chargers

Single Family Home



HCS-40R
Level 2
7.7 kW
25 RPH



Tesla
Level 2
19.2 kW
44 RPH

Commercial/Municipal, Mixed Use

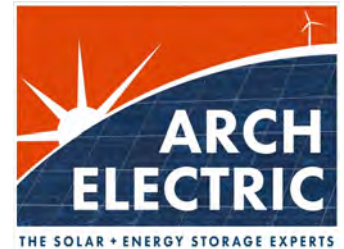


PMD-10R
Level 2
7.7 – 11.5 kW
25 – 40 RPH

On-Route, Commercial



CPE100
Level 2
19.2kW
80 RPH





PV + EV = Sustainable Transportation

