

NPPD/NDEE DC Fast Charger Efforts

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Nebraska Public Power District

“Always there when you need us”

The Benefits of Driving Electric

Save money

“Plug in” and spend far less than you do at the gas pump

Fact:

Driving electric can save you up to 65% on fuel and maintenance costs.

Clear the air

Say goodbye to tailpipe emissions

Fact:

Driving electric means no tailpipe emissions, helping to preserve the environment.

Support energy independence

Fuel your car with American-made energy

Fact:

Electricity is made from largely domestic sources helping to reduce the dependence on foreign oil.

Enjoy the ride!

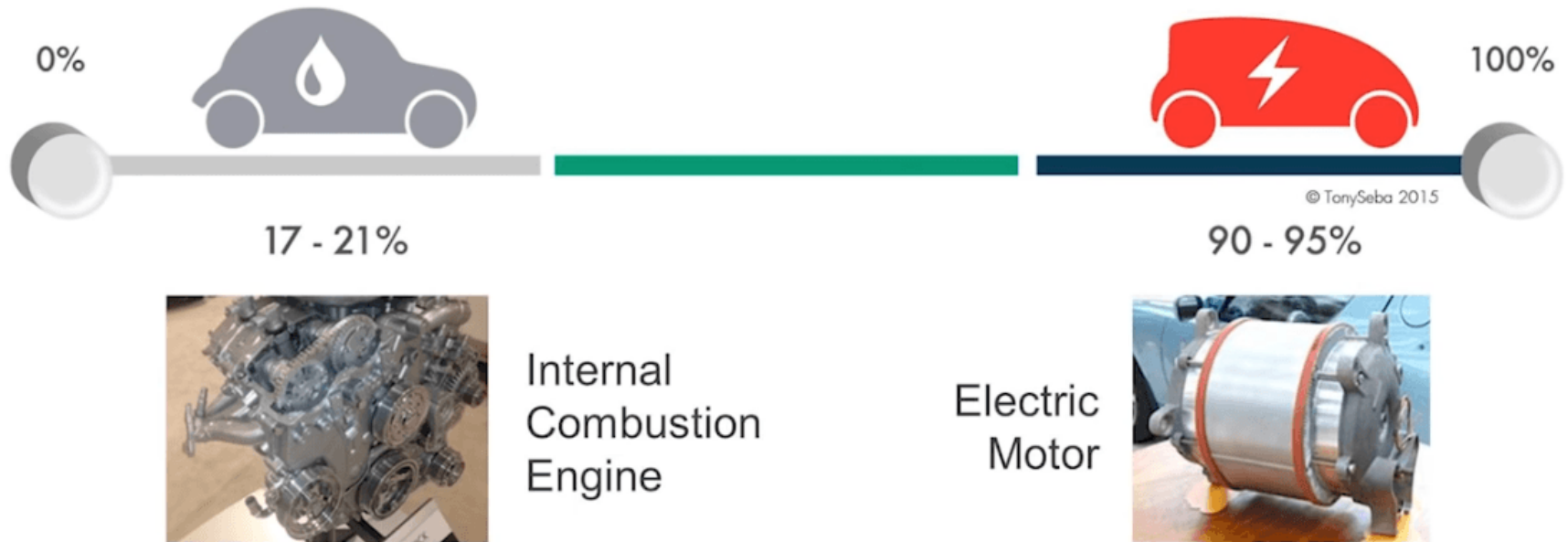
Feel the excitement of quick, quiet and smooth acceleration

Fact:

Electric vehicle owners tend to have higher satisfaction levels with their cars compared to non-electric vehicle owners.

Efficiency

Electric Vehicles are 5x More Efficient than gas vehicles
which lose ~80% of their energy as heat.



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Sources: ICE - DOE, EM Wikipedia, Image Sources: ICE - Tony Seba, Electric - BradMerritt.com

Reduced Maintenance

Gasoline Car

- 2,000+ moving parts



Electric Car

- ~20 Moving Parts



Operating Costs Comparison

EV (Tesla Model 3)	ICE Vehicle
<ul style="list-style-type: none">• 3.86 Miles/kWh (Edmunds tested)• \$0.11 / kWh – Level 2 (Home Charging)• \$0.28 / kWh – Tesla Supercharging (Trip Charging)• Cost / Mile<ul style="list-style-type: none">– Home 2.85¢– Trip 7.25¢– 80% home/20% trip = 3.73¢– 90% home/10% trip = 3.29¢	<ul style="list-style-type: none">• National Avg (23 Jul 2021)<ul style="list-style-type: none">– \$3.155 / gal (gasprices.aaa.com)• Nebraska Avg (23 Jul 2021)<ul style="list-style-type: none">– \$2.997 / gal (gasprices.aaa.com)• Oil Change \$65 / 5,000 miles (1.3¢ / mile)• Cost / Mile<ul style="list-style-type: none">– 20 MPG = 16.285¢– 25 MPG = 13.288¢– 30 MPG = 11.290¢– 40 MPG = 8.793¢

Electric Vehicle Charging Infrastructure

	AC Charging Home, Fleet and Public Use		DC Fast Charging Public and Large Fleet Use	
Type	Level-1	Level-2		
Power	120V, 1.4 kW @ 12 amp 120V, 1.9 kW @ 16 amp	240V, up to 19.2 kW (80 amp)	200-500V, up to 40 kW (80 amp)	200-500V, >300kW (200 amp)
Charge Time (Miles of range per hour of charge)	3 to 5 miles	3.3 kW – 10 to 14 miles 6.6 kW – 20 to 25 miles 9.6 kW – 40 to 45 miles 19.2 kW – up to 60 miles	40 kW – up to 120 miles	100 kW – up to 300 miles 350 kW – up to 260 in less than 30 minutes

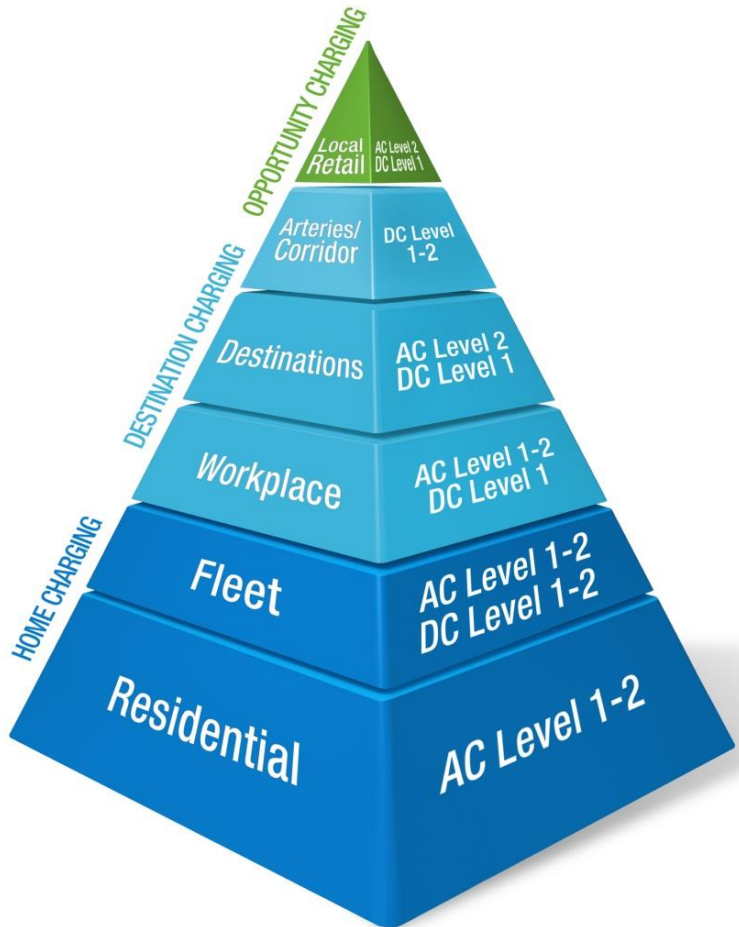
Cost and complexity tends to increase the faster the charging level.

Did you know?

Most plug-in electric vehicles can be charged on a household outlet overnight (Depending on battery size and charging level).

Vehicles can be charged in several ways; characterized by the speed of charge. Selection should be based on site characteristics and the typical needs of users

Charging Stations



More than 85 percent of residential and fleet charging is done at “home”

- “Home refueling,” charging overnight at home for personal vehicles and at work for fleet vehicles

Workplace charging is on the rise and supports electric vehicle adoption

- Provides charge for those without dedicated home charging
- Extends daily range

Public: Allows for mass adoption

- Relieves “range anxiety”
- BEST in destination locations or along major highway corridors

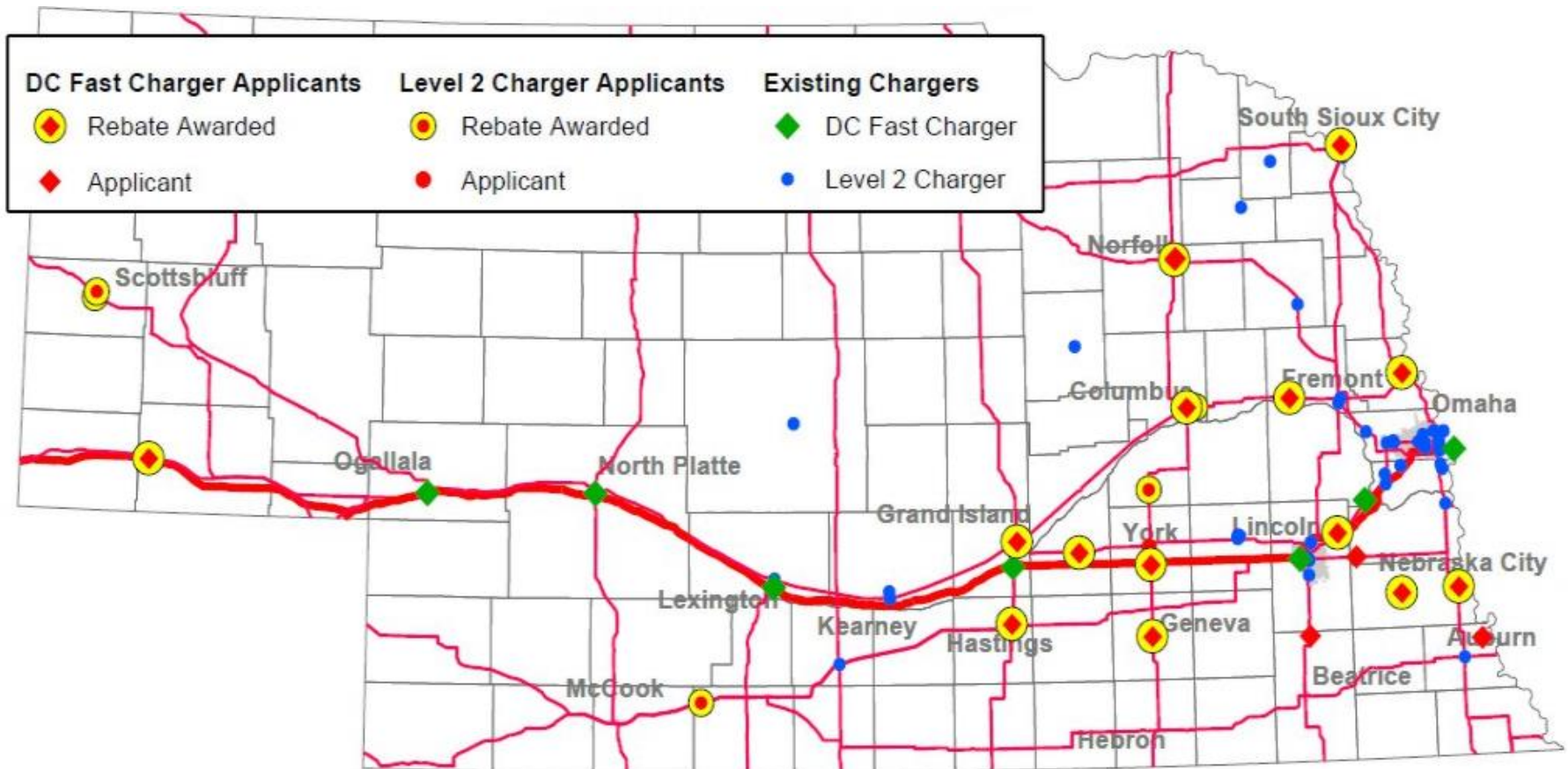
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Electric Trucks

- Tesla Cybertruck
 - End 2022, >300 miles, (500?)
- Rivian R1T
 - Mid 2022, >300 miles
- GMC Hummer EV SUT
 - End 2021, 1000 HP, >350 miles
- Ford F-150 Electric
 - Mid 2022, 300 miles



EV Charger Applicants Outside Lincoln & Omaha Metro and Current Public EV Chargers



NPPD Incentives

- **Commercial Conduit**
 - New Construction
 - Match 100% up to \$1000
- **Commercial Charger**
 - 50% Incentive of Out-of-Pocket Costs
 - 90% Incentive of Out-of-Pocket Costs for Utility Owned Charging Station
 - Public or Workplace Charger
- **Residential**
 - \$4500 for EV and Charger
 - \$500 for Charger
 - Garage/Home Wiring
 - \$200 for New Construction
 - 100% (maximum \$400) for Existing Structure
- **Grants for Non-Profit**
 - Pays ½ of Charger, multi year Data Plan, & Warranty
 - Owned by Not For Profit





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Nebraska Wind & Solar Conference

November 8 & 9th - Marriott Cornhusker Hotel, Lincoln

- Welcome – Jim Macy, NDEE
- Utilities CEO's (LES, NPPD, OPPD and Tri-State G&T)
- Utility Battery Storage
- National & Nebraska Solar Development
- Southwest Power Pool
 - February Storm Grid Resilience
 - Embracing Grid of the Future
- Policy and Legislative Update: State Senator Panel
- Hydrogen Generation: NREL & Monolith
- Energy Issues in Nebraska and Other States – NASEO (moderated by Joe Francis)
- More information – www.NebraskaWSC.com



Questions / Discussion