An Empire District Electric Initiative
Electric Vehicles

Robin McAlester
Business and Community Development Manager
US carmakers currently offer 95 different hybrid and electric models with many more coming in 2017.
Many More to be Launched ...
US EV Sales By Year

Cumulative U.S. Plug-In Vehicle Sales

- New Sales during current month
- BEV, PHEV & EREV December 2010 through prior month

December 2016 – 570,000

January 2013 – 76,000
EV Forecast

- 5 million EVs on the road by 2024
- Every hybrid will soon come with a plug

Source: Navigant Research
EV Penetration

By 2024, 4.4% of cars are expected to be EVs.

Source: Navigant Research
EV Fears
EV Fears

I’m going to run out of charge…
I’m going to run out of charge…

PEVs have a current range from 62 miles to 265 miles per charge.

PHEVs operate between 11 and 53 miles on all-electric driving before the gasoline engine engages.

*Within the average daily commute of 80% of the population.*
## Charging Stations

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage</strong></td>
<td>110 – 120 Volts AC</td>
<td>208V – 240 Volts AC</td>
<td>208V/480 Volts DC</td>
</tr>
<tr>
<td><strong>Range per hour (RPH)</strong></td>
<td>2-5 miles</td>
<td>10-30 miles</td>
<td>100-200 miles</td>
</tr>
<tr>
<td><strong>Charging Time</strong></td>
<td>12 – 18 hours</td>
<td>3 – 4 hours</td>
<td>20 – 30 mins</td>
</tr>
<tr>
<td><strong>Connector Standard</strong></td>
<td>3 pronged NEMA 5-15 to SAE J1772</td>
<td>Level 2 charger to SAE J1772</td>
<td>DC Charger to SAE Combo or CHAdeMO</td>
</tr>
<tr>
<td><strong>Use Case</strong></td>
<td>Rarely used publicly Residential charging</td>
<td>Full battery charging at home, top-off charging at work, shopping malls, stadiums etc.</td>
<td>Quick charging during short or long distance trips</td>
</tr>
</tbody>
</table>
Charging Stations

• Empire plans to continue installing stations through 2020

• Cost for a business - $0.20 to $0.60/hr. depending on vehicle
  $1 a day/per charger/charging 8 hours
EV Fears

They are too expensive...
EV Fears

They are too expensive…

• There are more than 95 models available from more than a dozen manufacturers.

• They come in a variety of models, price points, and powertrains to suit a wide range of customers.

• Plug-in Electric Vehicles (PEVs) are currently priced as low as $22,300.

• Plug-in Hybrid Electric Vehicles (PHEVs) are currently priced below $30,800.
Driving on Electricity is Cheaper than Gas in All 50 States

- Missouri Ranks #7
  - $940 annual savings
- Missourians Save More Because They Drive More and Lower Electricity Costs
- Assumes $0.119 kWh
- Retail Gas @ $2.11
- Annual Mileage- 16,452
  - 25% more than National Avg of 13,000

$1,300 - $1,101
$1,100 - $901
$900 - $701
$700 - $501
$500 - $300
Empire Fleet Cars

Currently, there are eight plug-in electric vehicles (PHEV) in Empire’s fleet.

Empire dedicates over five percent of its annual fleet replacement budget for the purchase of plug-in vehicles.

Two hybrid bucket trucks will be added to the fleet in 2017.
Why is Empire launching this initiative?

- It fits with corporate goal to
  "Be Responsible Stewards of the Environment"

- Customer usage trends have flattened (including peak periods) – making this an opportune time to encourage EVs

- Optimizing the availability of off-peak power, like the growing abundance of wind energy, will help us manage costs for customers over the long-term

- Customers are becoming more interested in adopting new technologies. When they are considering options like EV, we want to be there to provide the service and information they need.
GO GREEN.

Empire Corporate Goals

“Be Responsible Stewards of the Environment”

PEVs in Missouri still emit 27.2% less pollutants than gasoline counterparts (on average).
-Alternative Fuels Data Center, Department of Energy
GET GREEN.
Empire Rebate Program

Rebates for the purchase or lease of new or used plug-in electric cars.

Total electric vehicle (PEV) $2,000
Plug-in hybrid electric vehicle (PHEV) $1,000

Tax Incentives

Federal Tax Credit Up To $7,500
Workplace Benefits

• EV Charging is a benefit that many employers across the US are now offering.
• Employees need workplace charging to commute in their EVs or to switch to one.
• It drives more EV adoption – employees are 20X more likely to switch to an EV.
• Helps achieve sustainability goals and engage your employees in the cause.
Multi-Dwelling Units

- EV charging is becoming a basic amenity
- Need to be EV ready – to differentiate yourself from competitors

Benefits for You
- Attract and retain tenants
- Increase property value
- Meet emerging state and city regulations
- Future-proof your property
- Establish your brand as a green leader
Retail and Hospitality

• EV drivers make very attractive customers - they make 2X the average national average income, are highly educated, and are very green-minded

• EV drivers go where they can charge - they choose their destinations based on the availability of EV charging from their preferred network

• EV drivers are loyal to the plug – they make habitual stops at preferred destinations contributing to a loyal set of customers that help build a repeat business

• A visual way to show commitment to customers and the environment

• As customers “top off” their electric vehicle charge, they spend more time in your business, which equates to more money spent with you
Why Electric?

Drive a Better Car
+ New models
+ Instant acceleration
+ Quiet
+ HOV lane

Make a difference
+ EVs reduce CO₂ emissions from driving by about 50% on average across the country

Express Charging
+ Stop for 15-30 minutes to get a quick recharge
+ Make an EV your only car

Convenient Charging
+ Public charging where you live, work and around town

Drive for Less
+ Less maintenance
+ Avoiding gas stations can save $13,000
+ Tax credits and Rebates

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EV

Learn more about EVs at fueleconomy.gov

Rebates and forms evolvewithempire.com

Questions email electric.vehicles@empiredistrict.com.