In the Beginning...

1916 Detroit Electric
fun facts from the past

• First electric car in US 1891

• 1st speeding ticket given in 1899 to an electric car in New York

• Owned the land speed record till 1902 (65 mph)

• Sales of electric cars peaked in 1912 with 33,842 registered
more fun facts from the past

- Vanguard was the 6th largest US auto manufacturer in 1975 with the Citicar (4444 cars total)
- GM EV1 produced 1117 cars in 1996-1999 for the California market (lease only)
What is an Electric Vehicle?

- **Pure Electric Vehicles**
  - Nissan Leaf / Tesla S / Mitsubishi i-MiEV / Ford Focus / Kia Soul / Chevy Spark / BMW i3 / Fiat 500 E
- **DIY Conversions**
- **Plug-In Hybrid Electric Vehicle**
  - Chevy Volt / Prius / Fisker Karma / Cadillac ELR

Any car you can plug in
DIY Conversions

• Converted from gasoline to electric power
  • Any vehicle can be converted
  • Conversion kits available
  • Recycle your favorite vehicle
  • Customized for speed and range
  • Great family project
  • Owner pride
  • Owner serviceable
  • Typical 40-60 mile range
Full Electric Vehicles

Current Production Cars

i-MiEV

Tesla S

Leaf

Focus

Current Production Cars
Full Electric Vehicles

Current Production Cars

Soul

i3

Spark

500 E

Current Production Cars
The EV Numbers

- 565,000 Plug in vehicles Worldwide
- Top seller Nissan Leaf at 211,000
- But, the Tesla 3 has had 325,000 pre-orders
The Environment

• “Green” awareness
  • Emissions contained at electric plant, so less smog in city
  • Government support and incentives

• Cost of Fuel
  • Electrical cost predictable and less than 20% of gasoline

• Bigger Picture -
  • If the population was driving electric for commuting .
  • Reduces demand for gasoline .
  • Thus dropping the price of gasoline for those weekend trips to the coast:
Advantages of EV

- **Energy Efficiency**: 85% electric, 30% gasoline
- **Variety of “Fuel” sources for electricity**
  - Natural Gas, Solar, Wind, Coal, Hydro, Nuclear, Diesel, Gasoline
- **Lower Vehicle Emissions**
  - Varies with electric source, but all lower than gasoline
- **Convenience**
  - Very low maintenance
  - “Fuel” at home
Fuel Efficiency

• Compare Gasoline
  • 350 miles (14 gal $ 25 mpg at =2:00/gal) q =28 “fill up”
    • Plus in-town emissions, oil changes, oil filters, fuel filter, belts, etc

• Compare EV
  • 350 miles x 2:2 cents / mile q =7:70 “fill up”
    • AND no in-town emissions, no oil change, no oil filters, no fuel filters, no belts, etc

So EV fuel cost is less than 30% of gasoline
BTW@EV can go 20 miles on the electricity to make a gallon of gasoline (6 KW)
How to fill it up

- 98% at your home
  - 120 Volt Outlet
  - 240 Volt Outlet (dryer plug)

- Away from home
  - Any 120 Volt outlet
  - j1772 120/240 Volt commercial charging station
  - Tesla Superchargers (Tesla only)
  - 440 Volt quick charge
    - 80% Charge in 20 minutes
    - 24 in DFW area
How long to fill up?

- 120 Volts will charge at 6 miles per hour of charging
- 240 Volts
  - 15 miles per hour for early Leaf / Volt
  - 24 miles per hour for 2013+ Leaf / Tesla
- 440 volts (quick charge port)
  - 240 miles per hour (all so equipped)
  - 300 miles per hour Tesla Supercharger

It takes less than a minute to plug in your car, and you never have to go to a gas station:
How far can I go?

- Different cars have different ranges
  - Tesla S 250 miles
  - Leaf/Soul 100 miles
  - i-MiEV /Focus /I-3 /500 E /Spark 75 miles
  - Conversions vary based on requirements

- Average US Daily Driving Distance is Less than 30 Miles

Electric Vehicles Meet the Needs of Commuters
North Texas Electric Automobile Association

Thank you for coming!

WWW.NTEAA.ORG

EV Education and Information
Monthly Meetings
Public EV Displays
EV Presentations
The End