Electric Vehicles in North Texas

Public Works Council Meeting
August 25, 2016

Presenter: Rachel Linnewiel
Air Quality in North Texas

Ten Counties are Nonattainment for Ground-Level Ozone

Dallas-Fort Worth 2008 Eight-Hour Ozone
Nonattainment Area with Ozone Monitor Locations

Legend
- 2008 Eight-Hour Ozone Standard Nonattainment Area
- Near Nonattainment Counties
- Ozone Monitor Locations
- NCTCOG Service Area

May 2016
Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the *Design Value* (three-year average of the annual fourth-highest daily maximum eight-hour average ozone concentration) is less than or equal to 70 parts per billion (ppb).

1Not a full year of data, current as of 8/21/2016. Source: NCTCOG TR Dept.
Air Quality in North Texas

Estimated 2017 Nitrogen Oxides (NO\textsubscript{x}) Emissions Inventory
Source Category Estimates = 296.73 tons per day (tpd)

- On-Road (Cars & Trucks) 130.77 tpd (44%)
- Non-Road (Construction, Agriculture, etc.) 45.54 tpd (15%)
- Off-Road (Locomotives, Aircraft, etc.) 25.20 tpd (8%)
- Point, Excluding Oil & Gas (Power Plants, Cement Kilns, etc.) 38.30 tpd (13%)
- Point - Oil & Gas 16.50 tpd (6%)
- Area (Dry Cleaners, Bakeries, etc.) 26.55 tpd (9%)
- Oil & Gas (Production & Drill Rigs) 13.87 tpd (5%)

Source: Texas Commission on Environmental Quality, 2017 Dallas-Fort Worth 8-hour Ozone Attainment Demonstration State Implementation Plan
Electric Vehicles North Texas: Initiatives and Focus Areas

- Promote EV Adoption
- Promote EV Readiness
- Evaluate EV Registration Data with Infrastructure Sites
- Engage Local Businesses in Workplace Charging Challenge
- Develop Marketing/Educational Materials
- Host National Drive Electric Week Events
- Create Region-Specific Fact-Sheets
- Monitor Local Interest-Group Activities
- Raise Awareness - #TexasEV

EV = Electric Vehicle
Introduction to EVs

- Hybrid Electric Vehicle (HEV)
- Plug-In Hybrid Electric Vehicle (PHEV)
- All-Electric Vehicle (EV) or Plug-In Electric Vehicle (PEV)
Introduction to EVs

All-Electric Miles per Model

- 2015 Tesla Model S (85 kW-hr battery pack): 265 miles
- 2015 Tesla Model S (60 kW-hr battery pack): 208 miles
- 2015 Nissan Leaf: 84 miles
- 2015 Volkswagen e-Golf: 83 miles
- 2015 BMW i3: 81 miles
- 2015 Ford Focus Electric: 76 miles
- 2015 smart fortwo electric drive coupe: 68 miles
- 2016 Mitsubishi i-MiEV: 62 miles
- 2015 Chevrolet Volt: 38 miles
- 2015 Cadillac ELR: 37 miles
- 2015 Ford C-MAX Energi Plug-in Hybrid: 20 miles
- 2015 Ford Fusion Energi Plug-in Hybrid: 20 miles
- 2015 Toyota Prius Plug-in Hybrid: 11 miles
# Introduction to Electric Vehicle Service Equipment (EVSE)

<table>
<thead>
<tr>
<th>Type</th>
<th>Specifications</th>
<th>Time Needed to Charge 10 Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>AC 110–120 V 12 or 16 amps 1.44, 1.92 KW</td>
<td>1h 40 min</td>
</tr>
<tr>
<td>Level 2</td>
<td>AC 208–240 V 16 - 80 amps 3.3 - 19.2 KW</td>
<td>~ 30 min</td>
</tr>
<tr>
<td>Fast Charging</td>
<td>DC 200–450 V ≤ 200 amps ≤ 90 KW</td>
<td>&lt; 5 min</td>
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</tbody>
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Introduction to EVSE

Level 1 and Level 2 Chargers  

DC Fast Chargers

Images Courtesy of National Renewable Energy Laboratory
North Texas EV Statistics

Total EV Registration:
Texas: 7675
DFW Area: 2948
38% of TX total
(As of August 2016)

* NCTCOG staff plans to include additional models including: Cadillac ELR, Chevrolet Spark, Fiat 500e, Honda Accord Plug-In & Fit EV, Toyota Plug In Prius, & RAV4 EV
North Texas EV Registration and EVSE Distribution
EVSE Hierarchy

Public
- Parking lots/garages
- Public/municipal
- Retail
- Transportation hubs
- Hotels

Workplace
- Business offices
- Office parks or campuses
- Industrial facilities
- Fleets

Home
- On-street
- Multi unit dwelling
- Single family residential garages and driveways
Public EVSE Management Options

- **Host-Owned EVSE**
  - Business or Property Owner Pays to Own and Install EVSE
  - Charging Time-Based or Provided as a Free Public Service

- **Network-Owned EVSE**
  - Installation Company (e.g. Chargepoint, NRG EVgo, Blink, etc) Contracts with Host to Install EVSE
  - Installation Company Retains Ownership of EVSE
  - Users Pay Fee, Often Time-Based or Monthly Membership

- **In Both Cases:** Installation Requires Licensed Electrician Only
Available Incentives

- **Texas Commission on Environmental Quality (TCEQ) Texas Emission Reduction Plan (TERP) Alternative Fueling Facilities Program (AFFP)**
  - Provides grants of up to 50% of total eligible costs or a max. of $600,000 for the construction or expansion of alternative fueling stations in specific counties
  - Deadline for Applications: November 8, 2016 at 5pm

[www.terpgrants.org](http://www.terpgrants.org)
Workplace Charging Challenge

- Program of the Department of Energy
- EVNT Provides Support By:
  - Tenant Surveys
  - Fact Sheets and Online Resources
  - In-Person Consultation
  - Customized Events
Alternative Fuels Data Center
Tools: Station Locator

Find Stations

Plan a Route

Electric

more search options

14,161 electric stations
35,374 charging outlets
in the United States
Excluding private stations

Location details are subject to change. We recommend calling the stations to verify location, hours of operation, and access.

http://www.afdc.energy.gov/
Alternative Fuels Data Center Tools: PEV Readiness Scorecard

- Assess Readiness for Wide-Scale EV and EVSE Adoption
- Receive Feedback about Strengths and Ways to Improve
- Record and Track Progress

http://www.afdc.energy.gov/
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