



Dallas-Fort Worth
CLEAN CITIES

Electric Vehicles in North Texas

Public Works Council Meeting

August 25, 2016

Presenter: Rachel Linnewiel

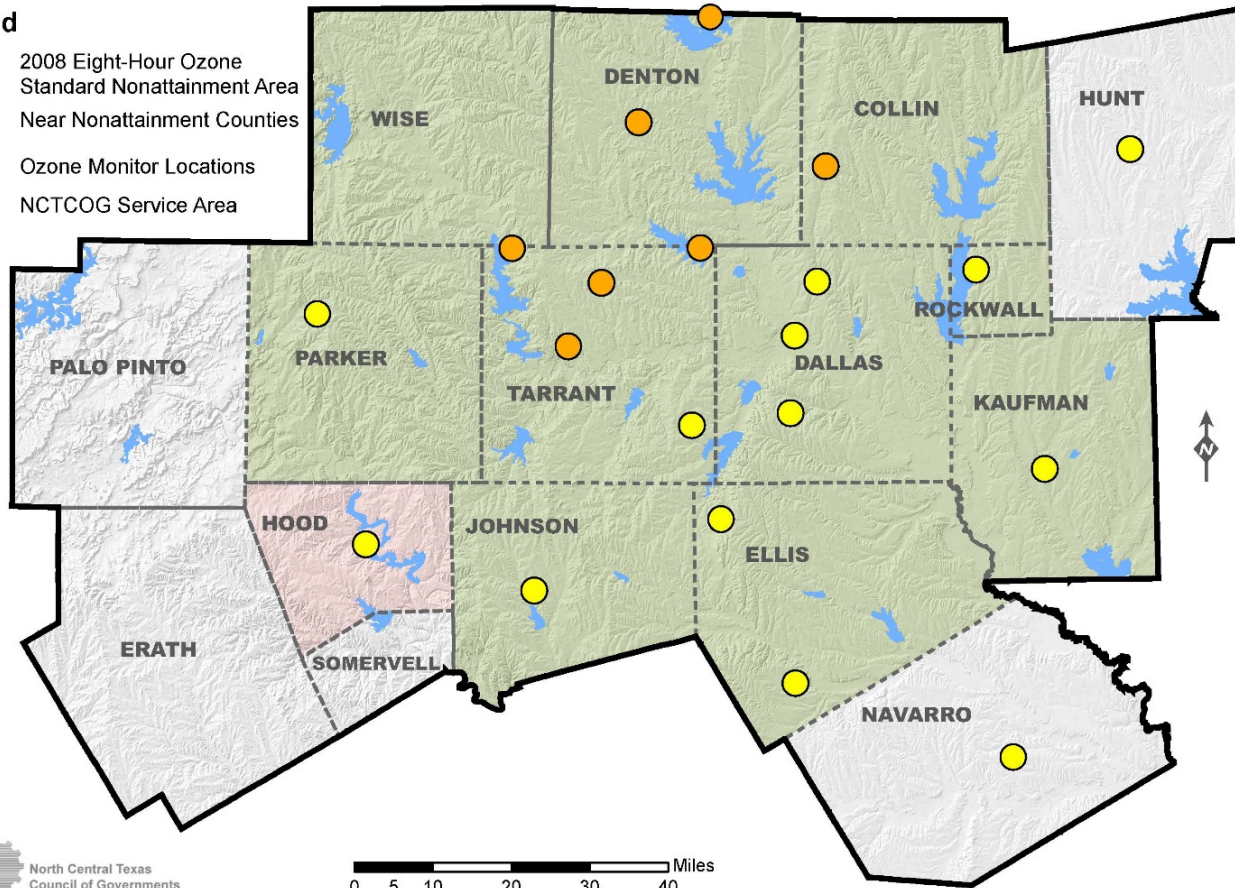
Air Quality in North Texas

Ten Counties are Nonattainment for Ground-Level Ozone

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

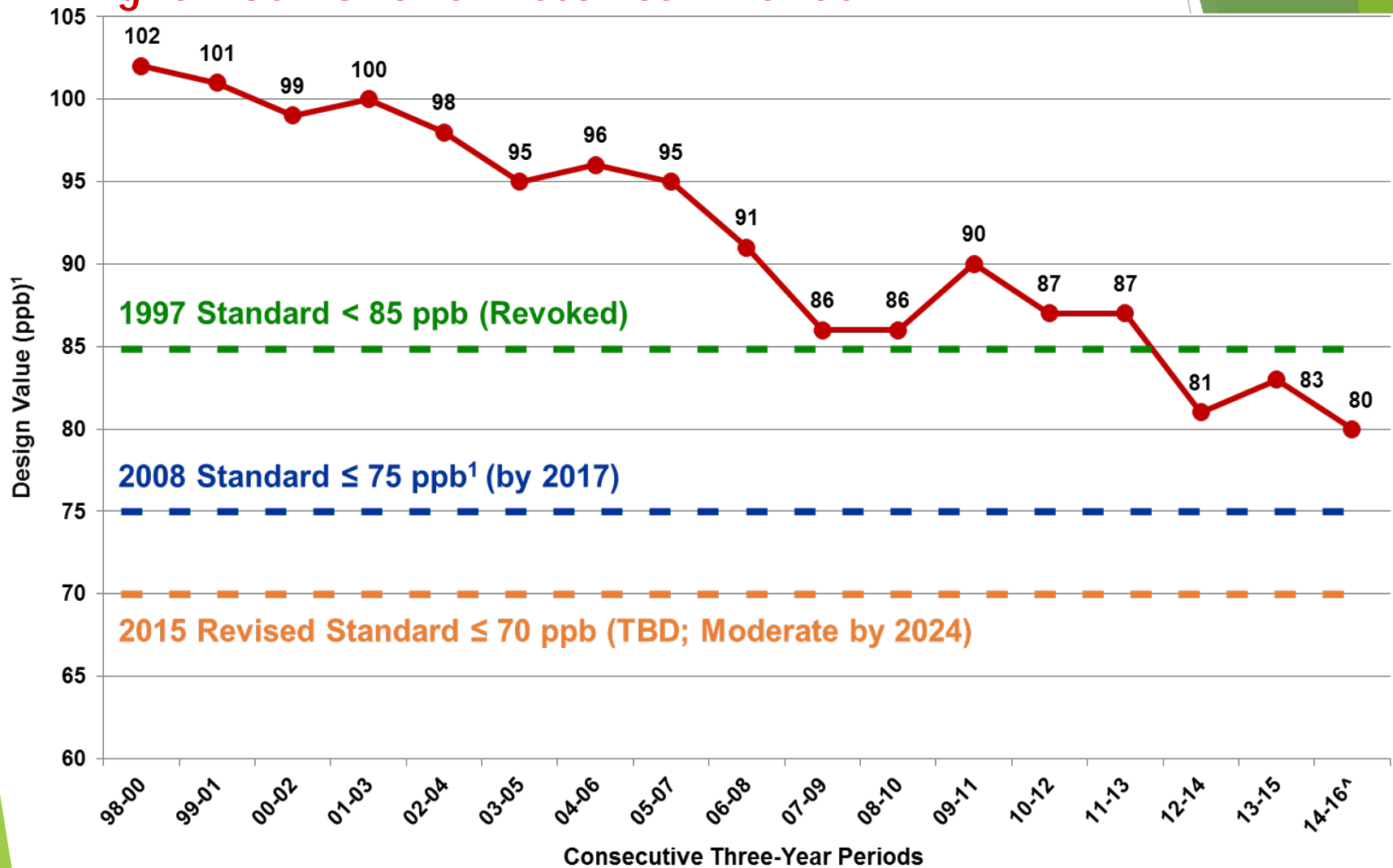
Legend

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



Air Quality in North Texas

Eight-Hour Ozone Historical Trends

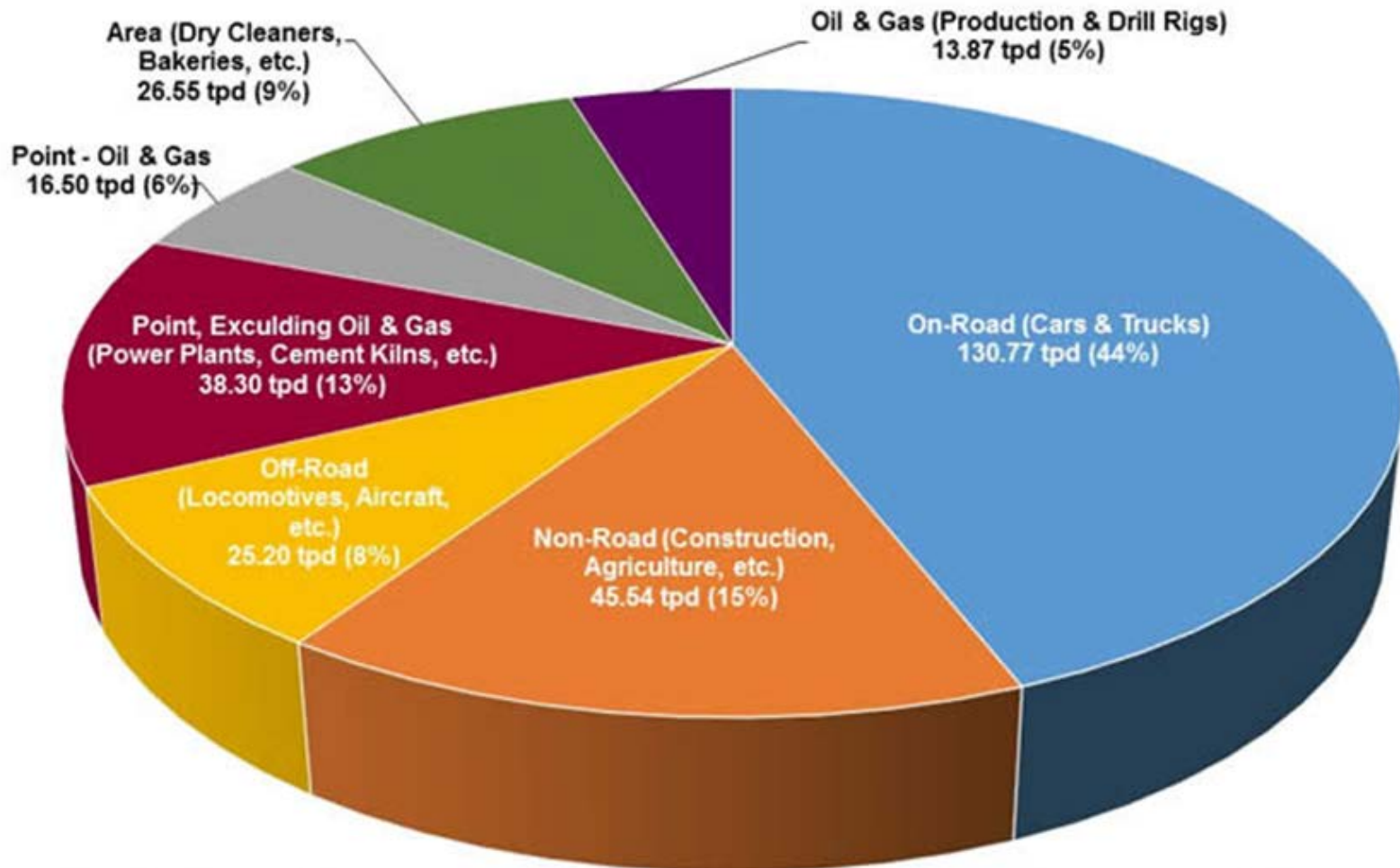


¹Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the *Design Value* (three-year average of the annual fourth-highest daily maximum eight-hour average ozone concentration) is less than or equal to 70 parts per billion (ppb).

[^]Not a full year of data, current as of 8/21/2016.

Air Quality in North Texas

Estimated 2017 Nitrogen Oxides (NO_x) Emissions Inventory Source Category Estimates = 296.73 tons per day (tpd)



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)



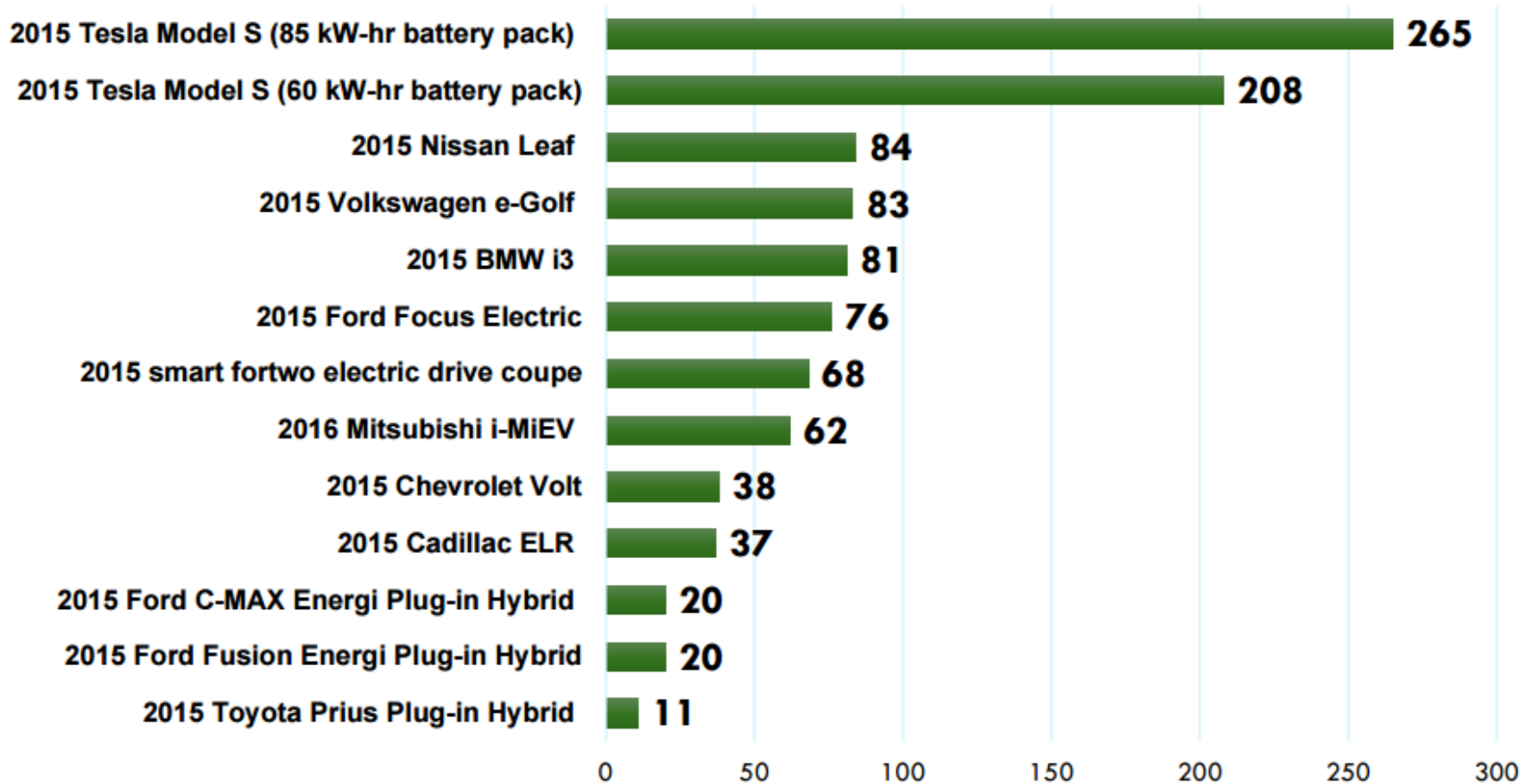
Plug-In
Hybrid
Electric
Vehicle
(PHEV)



All-Electric
Vehicle (EV)
or Plug-In
Electric
Vehicle (PEV)

Introduction to EVs

All-Electric Miles per Model



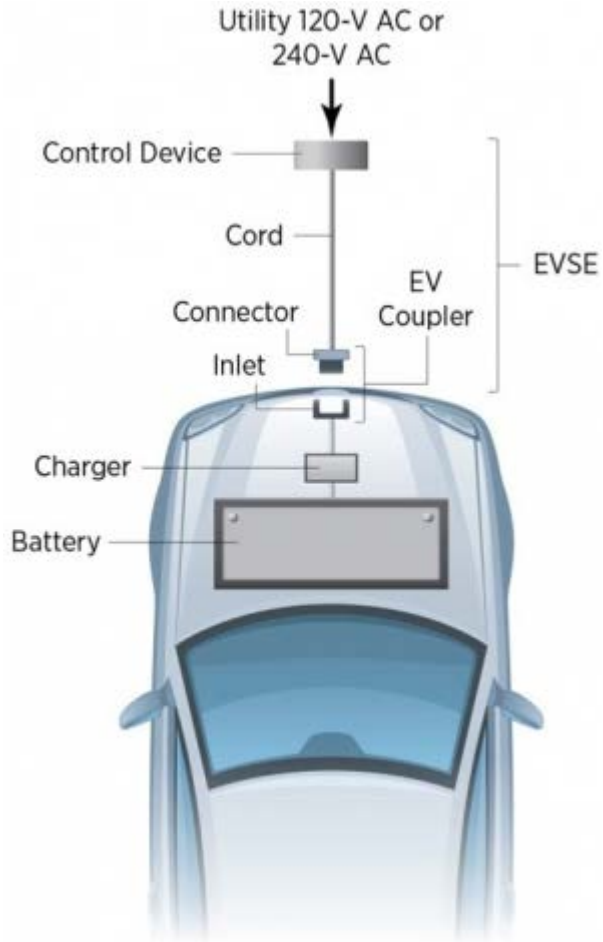
Introduction to Electric Vehicle Service Equipment (EVSE)



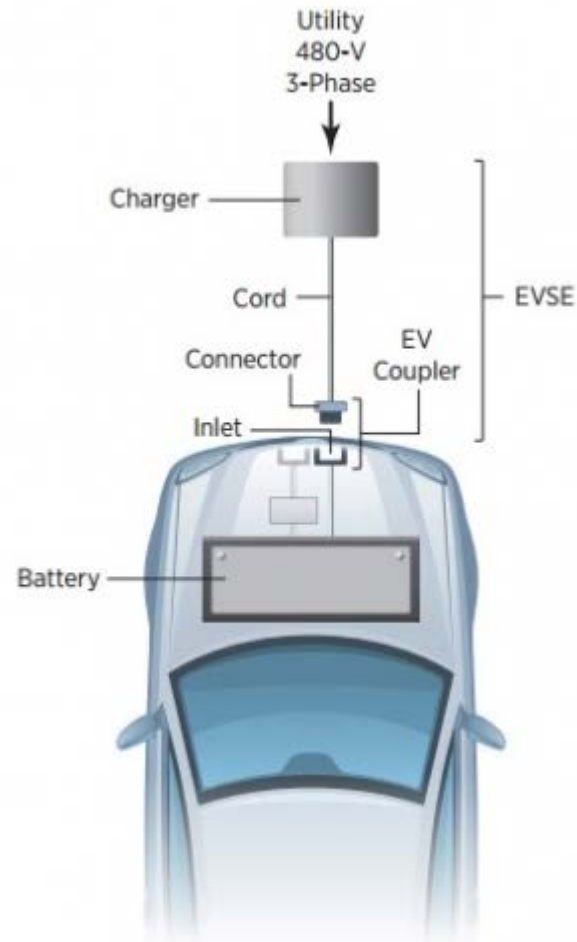
| Type | Specifications | Time Needed to Charge 10 Miles |
|---------------|--|--------------------------------|
| Level 1 | AC 110–120 V 12 or 16 amps 1.44, 1.92 KW | 1h 40 min |
| Level 2 | AC 208–240 V 16 - 80 amps 3.3 - 19.2 KW | ~ 30 min |
| Fast Charging | DC 200–450 V ≤ 200 amps ≤ 90 KW | < 5 min |

Introduction to EVSE

Level 1 and Level 2 Chargers



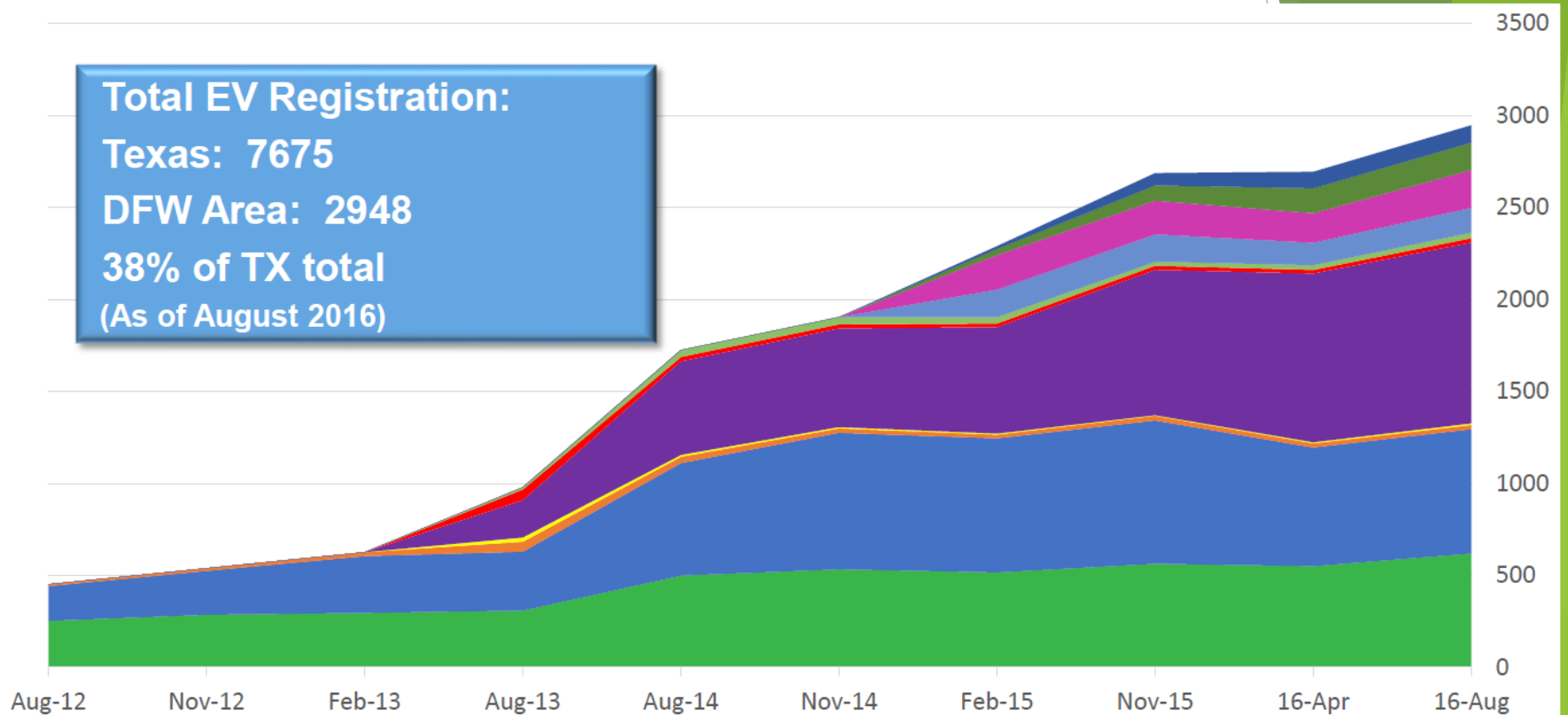
DC Fast Chargers



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)




- Chevrolet Volt
- Nissan Leaf
- Mitsubishi i-MiEV
- Tesla Roadster
- Tesla Model S
- Fisker Karma
- Ford Focus Electric
- Ford C-Max
- Ford Fusion Electric
- BMW i3
- BMW i8

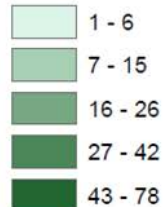
*NCTCOG staff plans to include additional models including: Cadillac ELR, Chevrolet Spark, Fiat 500e, Honda Accord Plug-In & Fit EV, Toyota Plug In Prius, & RAV4 EV


North Texas EV Registration and EVSE Distribution


Legend

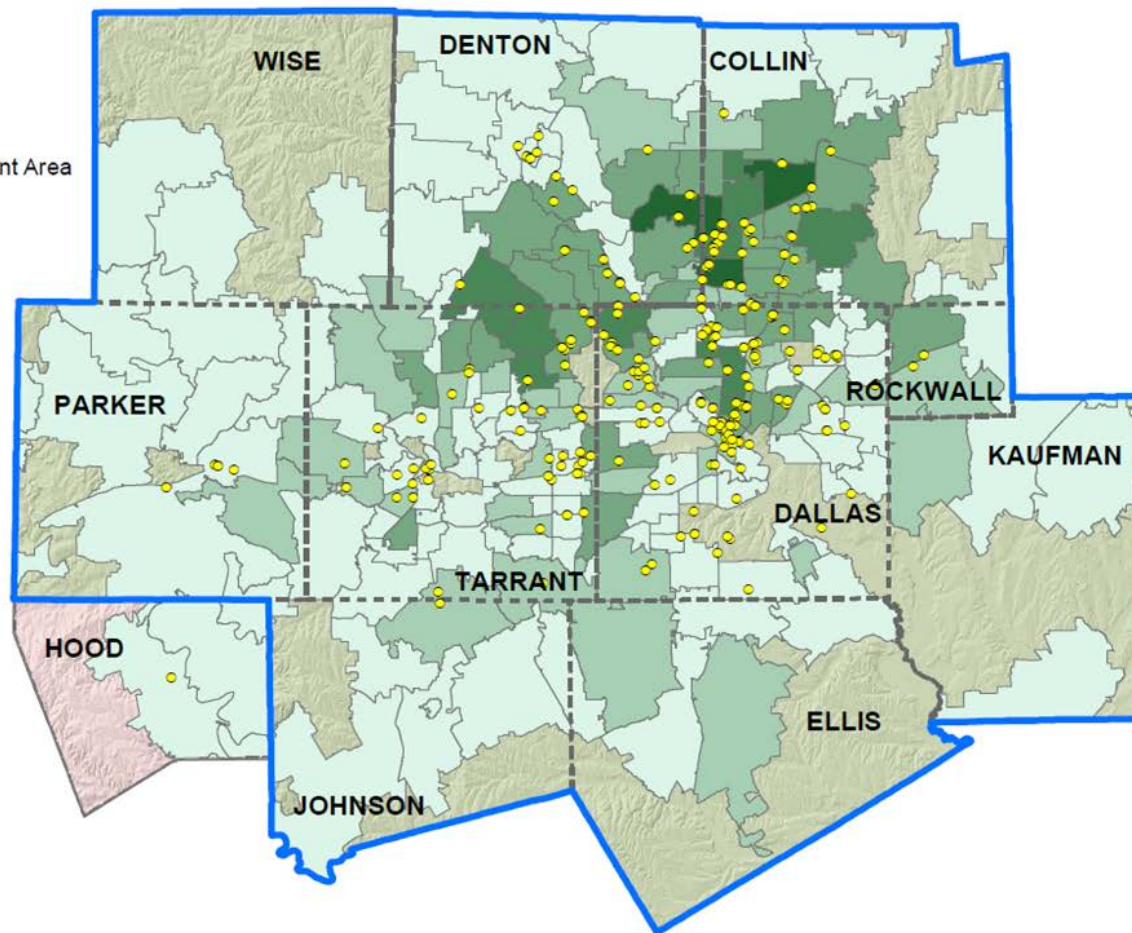
 2008 Eight-Hour Ozone Nontainment Area

EV Density by ZIP Code



 EV Charging Stations

 Near Nonattainment Counties



August 2016

Source: NCTCOG

EVSE Hierarchy



Public EVSE Management Options

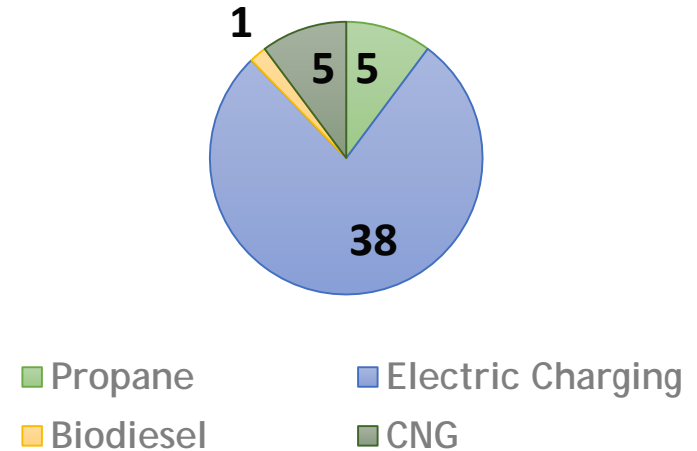
- ▶ Host-Owned EVSE
 - ▶ Business or Property Owner Pays to Own and Install EVSE
 - ▶ Charging Time-Based or Provided as a Free Public Service
- ▶ Network-Owned EVSE
 - ▶ Installation Company (e.g. Chargepoint, NRG EVgo, Blink, etc) Contracts with Host to Install EVSE
 - ▶ Installation Company Retains 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

AFFP 2016 Awarded Project Types (Fuel Stations)



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



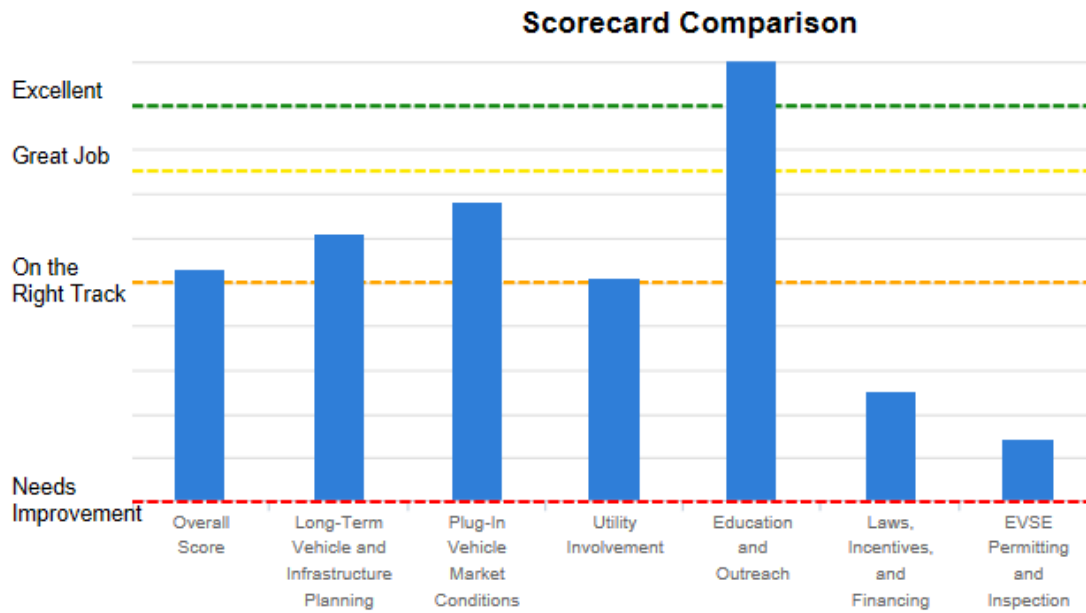
Alternative Fuels Data Center Tools: Station Locator

The screenshot shows the 'Station Locator' tool interface. On the left, there are two tabs: 'Find Stations' (active) and 'Plan a Route'. Below the tabs is a search bar with the placeholder text 'Q address, ZIP, or state...' and a green 'Go' button. A dropdown menu is set to 'Electric', with a link for 'more search options'. Below this, the tool displays the following statistics: '14,161 electric stations' and '35,374 charging outlets in the United States', with a note 'Excluding private stations'. At the bottom left, there is a disclaimer: 'Location details are subject to change. We recommend calling the stations to verify location, hours of operation, and access.' and a blue button labeled 'ABOUT THE DATA'. The main area is a map of the United States and parts of Canada, densely populated with blue triangle markers representing charging stations. The map includes state names and a 'Google CART' logo at the bottom left. In the top right corner of the map area, there are links for 'Embed' and 'Submit New Station'. A zoom control with '+' and '-' buttons is visible in the bottom right corner of the map.

<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/>

Contact Information



Rachel Linnewiel
Air Quality Planner
rlinnewiel@nctcog.org
(817) 608-9329



Dallas-Fort Worth
CLEAN CITIES

Lori Clark
Principal Air Quality Planner
lclark@nctcog.org
(817) 695-9232



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