NGVs – Status Report

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Overview

- There are about 142,000 NGVs on U.S. roads today and more than 16.7 million worldwide
- There are 1,436 CNG and 101 LNG fueling stations in the U.S.
- Refueling appliances are available for home use
- In the U.S., about 50 different manufacturers produce 100 models of light-, medium-, and heavy-duty vehicles and engines
- Natural gas currently costs from $1.50 to $2.00 less per gasoline gallon equivalent (GGE)
- In the U.S. NGVs offset the use of about 400 million gallons of gasoline in 2013

NGVs Worldwide

NGV Population: Top Ten Countries

COUNTRY	NGV Population	% all NGVs in world
Iran	3,000,000	18.8%
Pakistan	2,900,000	18.8%
Argentina	2,140,000	12.5%
Brazil	1,739,676	11.2%
China	1,577,000	6.6%
India	1,250,000	7.2%
Italy	746,470	5.1%
Ukraine	390,000	2.6%
Colombia	380,000	2.3%
Thailand	358,000	2.0%

NGV Saturation: Top Ten Countries

COUNTRY	NGV Population	Saturation in Country
Armenia	244,000	77.34%
Pakistan	2,900,000	64.71%
Bolivia	254,722	37.15%
Iran	3,000,000	20.76%
Bangladesh	210,000	18.17%
Argentina	2,140,000	17.26%
Uzbekistan	300,000	15.00%
Peru	150,000	9.49%
Colombia	380,000	7.73%
Ukraine	390,000	4.76%

2012 Statistics from NGV Global

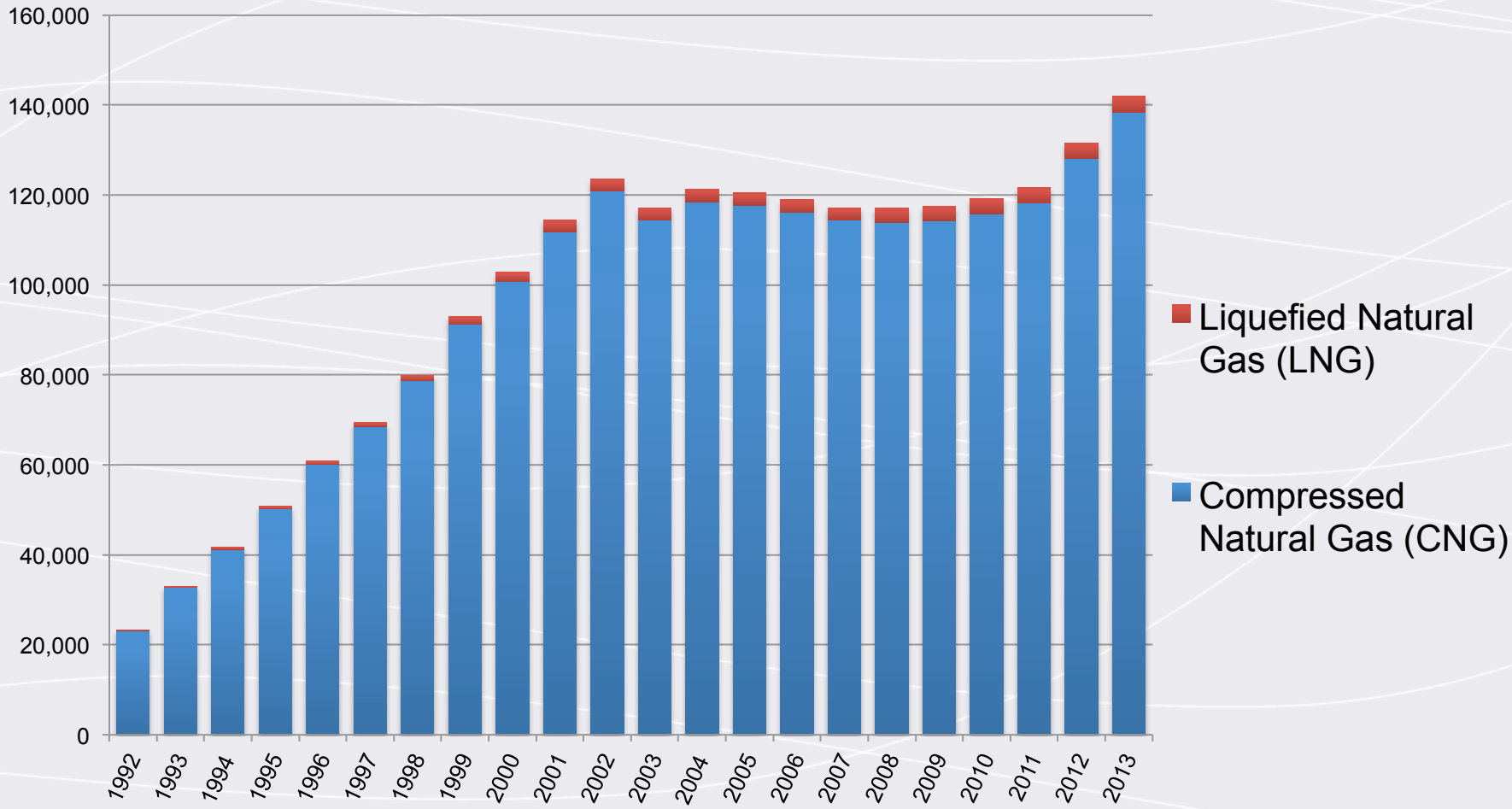
Total NGVs: 16,733,098

Total Natural Gas Fueling Stations: 21,292

Expect the total NGVs worldwide to be more than 50 million by 2025

U.S. Rank – 17th in total NGVs, with less than 1% of total vehicles

U.S. - NGVs in Use



Fastest Growing Sectors: Transit & Waste

- Transit buses are the largest users of natural gas for vehicles
  - Roughly 20% transit buses ran on CNG or LNG in 2012
- Waste collection and transfer vehicles are the fastest growing NGV segment
  - Almost 50 percent of the trash trucks purchased in 2012 run on natural gas

NGV Progress in Texas

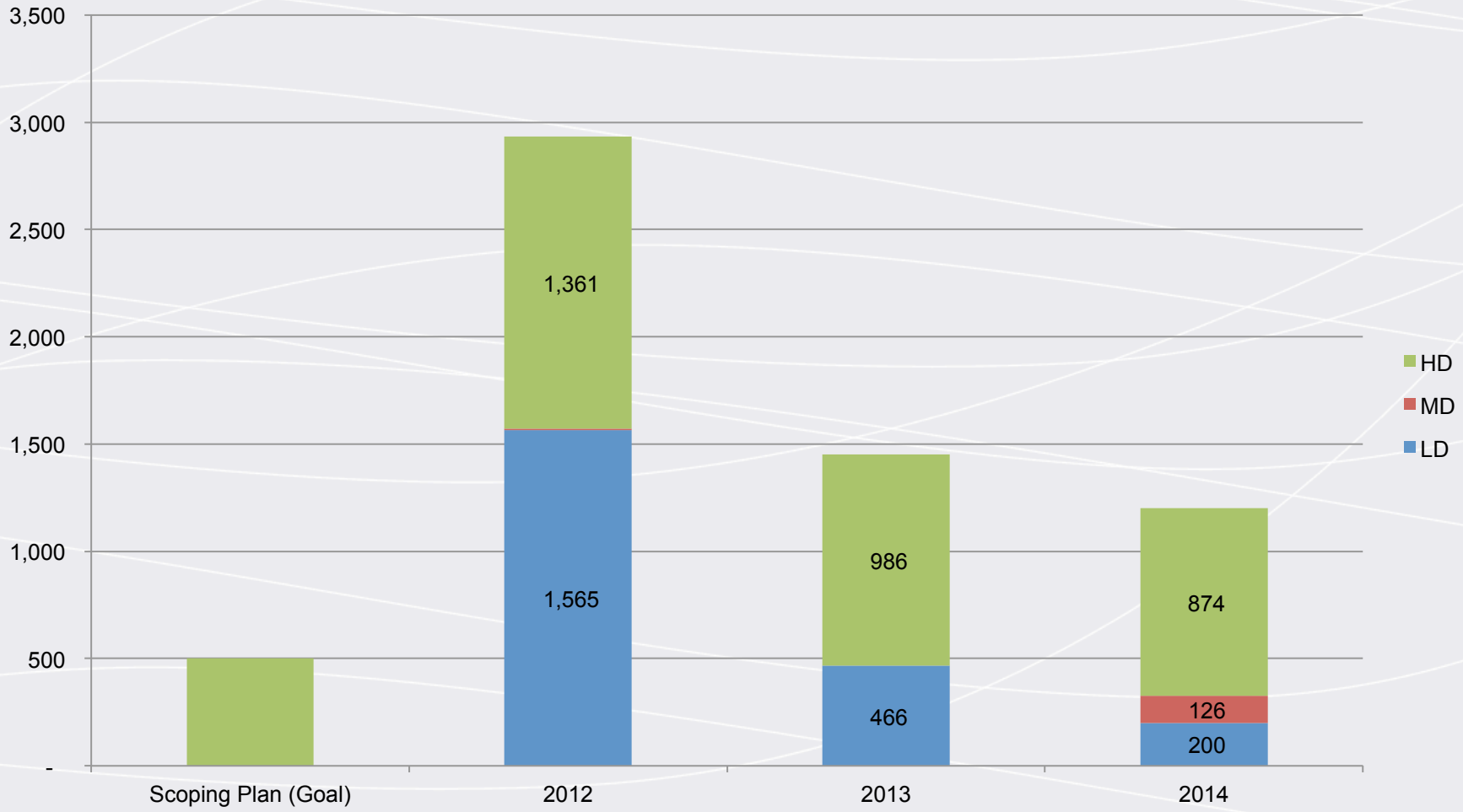
SB 80 Goals

- Advance the use of natural gas in transportation – target 500 HD trucks and supporting infrastructure
- Develop a strategic fuel corridor of natural gas stations that is public access, convenient, and accessible to heavy-duty trucks
- Transform transportation in Texas through the deployment of natural gas vehicles, with emphasis on the goods movement sector
- Establish Texas as a leader on the development of the NGV market

Results

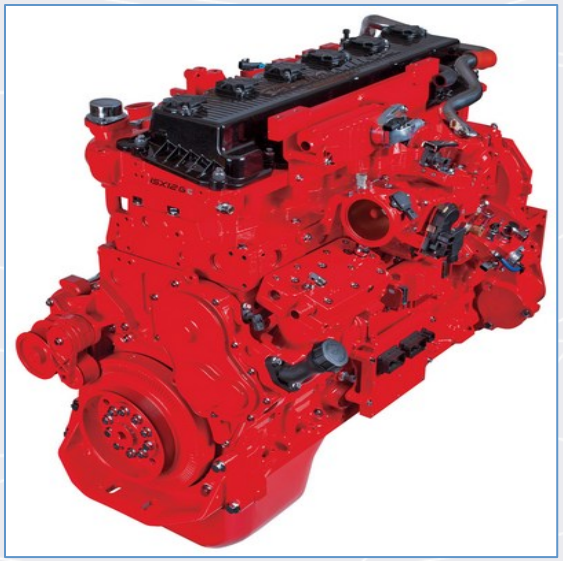
- 104 places to refuel in Texas (60 public fueling stations and 44 private stations)
  - 50 percent more than the 69 stations a year ago
  - 67 additional stations are planned to open in 2015
- As of July 31, fiscal 2014 tax revenue from CNG and LNG motor fuel totaled $2,178,199
  - This revenue through July 2014 ***more than doubled total 2014 projections.***
- Public and private investment in natural gas vehicles and fueling stations in Texas totaled ***$174 million in the past year.***

Texas NGV Growth

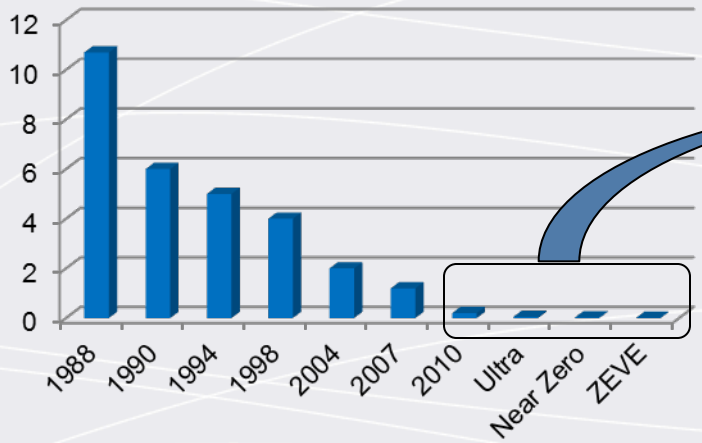


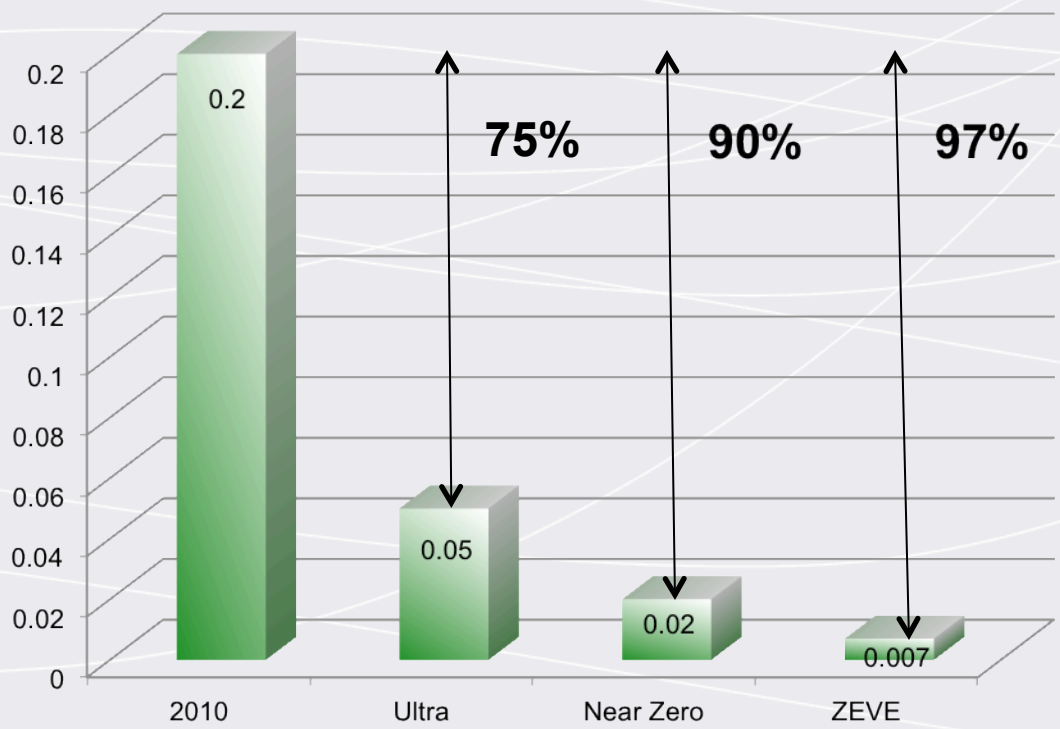
Exciting New Developments

- Increasing number of NGV models
- Growth of NG in the HHP sector
- EPA data indicates that fugitive methane emissions are falling
- Coming soon: Near-zero emission HDEs
  - 0.02g/bhp-hr NOx = natural gas power plant
  - 90% lower than today's HDE NOx standard



Progress in HDE NOx Emissions





Near Zero = Power plant equivalent (~0.02 g/bhp-hr)

Zero Emission Equivalent = Grid equivalent (~0.007 g/bhp-hr)

Challenges

- Traditionally, the U.S. environmental community supported NGVs
- Issues such as LNG import terminals, fracking and fugitive methane emissions have soured environmentalists on NGVs
- Much of the environmental community now views natural gas more skeptically, and as a fossil fuel whose use should be reduced

Challenges (cont.)

- Historically, California played a major role in the promotion of NGVs
  - Carl Moyer Program
  - SCAQMD Fleet Rules
  - Optional low-NOx emissions standards
- Some believe that CARB has become decidedly anti-natural gas in the past year
  - Public policy agenda dominated by climate protection
  - Obsession with impact of fugitive methane as a GHG
  - Proposed changes to Low Carbon Fuel Standard, using questionable data, will disadvantage NGVs
  - Sustainable freight strategy discounts NGVs and elevates electric technologies
  - Questions about role of NGVs in meeting 2050 GHG reduction goals

Needed: Texas' Leadership

- NGVs need Texas to counter negative trends in California
- Need support for the development of the near-zero emission HDEs
- Need to demonstrate to engine manufacturers that there will be a market for bigger engines