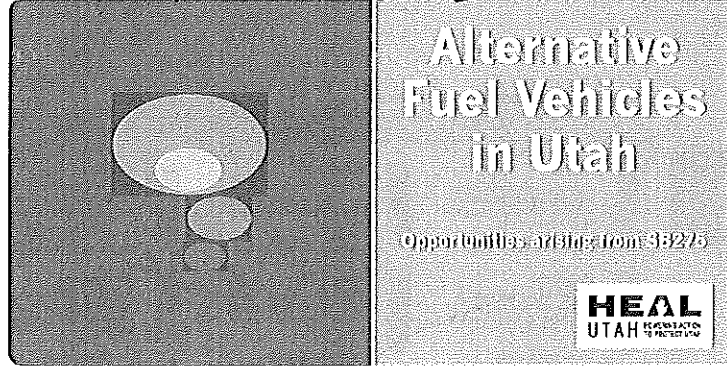
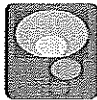


Docket No. 13-057-02

Hearing held on August 7, 2013  
Exhibit to Presentation given by  
Matt Pacenza for HEAL Utah



### Statutory language



- "explore and develop options and opportunities for advancing and promoting measures designed to result in cleaner air in the state through the enhanced use of **alternative fuel vehicles.**"
- **alternative fuel vehicles**, according to federal government, has a very clear meaning:

## What are Alternative Fuel Vehicles?

### Alternative Fuels and Advanced Vehicles

More than a dozen alternative fuels are in production or under development for use in alternative fuel vehicles and advanced technology vehicles. Government and private sector vehicle fleets are the primary users of these fuels and vehicles, but consumers are increasingly interested in them. Using alternative fuels and advanced vehicles instead of conventional fuels and vehicles helps the United States reduce petroleum use and vehicle emissions.



#### Biodiesel

Biodiesel is a renewable fuel that can be manufactured from vegetable oils, animal fats, or recycled cooking grease for use in diesel vehicles.

➤ Diesel Vehicles



#### Electricity

Electricity can be used to power plug-in electric vehicles, which are increasingly available. Hybrids use electricity to boost efficiency.

➤ Hybrid & Plug-In Vehicles



#### Ethanol

Ethanol is a widely used renewable fuel made from corn and other plant materials. It is blended with gasoline for use in vehicles.

➤ Flexible Fuel Vehicles



#### Hydrogen

Hydrogen is a potentially emissions-free alternative fuel that can be produced from domestic resources for use in fuel cell vehicles.

➤ Fuel Cell Vehicles



#### Natural Gas

Natural gas is a domestically abundant gaseous fuel that can have significant fuel cost advantages over gasoline and diesel fuel.

➤ Natural Gas Vehicles



#### Propane

Propane is a readily available gaseous fuel that has been widely used in vehicles throughout the world for decades.

➤ Propane Vehicles

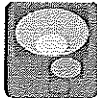
Source: <http://www.afdc.energy.gov/fuels/>

## Buses: Best Air Quality Investment?



- Terrific report: "Clean Diesel versus CNG Buses: Cost, Air Quality, & Climate Impacts," by MJ Bradley for Clean Air Task Force
- Emissions calculations for buses and other large vehicles have changed dramatically, since new diesel rules went into effect
- Sharply cut sulfur content in fuel, from 500 ppm to 15 ppm
- Required new controls in vehicles to take advantage of low sulfur fuel
- Result is Clean Diesel buses emit "94% less NOx per mile, 98% less PM, and 89% less HC" than aging diesels

## Clean Diesel vs. CNG Buses



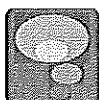
- Emissions profiles are similar. Diesel better on NOx, CNGs better on PM and HC
- CNGs slightly better on climate gases.
- Diesels much cheaper to buy (**\$70,000 less**) than CNGs
- Diesels don't require costly fueling infrastructure
- However, CNG has much cheaper fueling costs
- Choice between two depends upon priorities, upon funding streams.
- What is clear: **Replacing as many older buses as possible should be goal.**

## Buses Conclusion



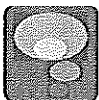
- *"For every \$10 million of capital funding, a transit agency could purchase approximately 26 new diesel buses or 21 new CNG buses (and associated fueling infrastructure), and retire an equivalent number of old buses. Given that a greater number of older, high emitting buses could be retired, fleet-wide emission reductions of NOx, PM, and HC per dollar of capital funding could be 47%, 23%, and 11% higher, respectively, if new diesel buses are purchased than if new CNG buses are purchased."*

## Consumer Vehicles



- CNGs vs. EVs
- EVs are cleaner, much so if localized pollution is principle concern
- Much less fueling infrastructure needed
  - Overnight charges at home w/no need to add anything
  - Rapid charging stations, vs. CNG, are roughly 1/20<sup>th</sup> the cost.

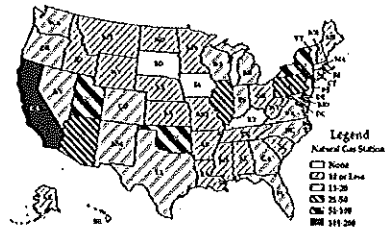
## Vehicle Popularity



- New CNGs have failed to take hold in consumer market, after years available
- 20,381 of the 14.5 million cars and trucks sold last year run on CNG.
- EVs averaging about 7,000 a month in 2013 – projected to get close to 100,000 by end of year
- So-called "range anxiety" fading for consumers

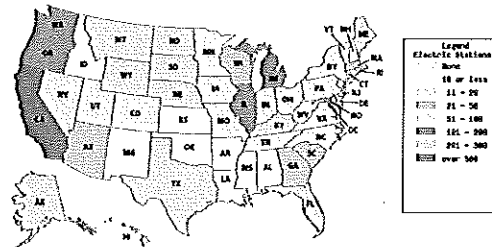
## Utah support for CNGs vs. EVs

- Even prior to SB275, Utah had one of most developed CNG fueling infrastructures in nation



## Utah support for EVs

- Skewed rebate policy: \$2,500 for CNGs vs. \$605 for EVs. Doesn't apply to leases.
- EV charging lags



## Conclusion



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- Especially in consumer market, alternative fuel vehicles which aren't CNGs are likely smarter air-quality investment bet
- Even in fleet vehicles, Clean Diesel and EVs should be studied
- Utah already done much to support CNGs – time now to do same for others, and let market decide.

**HEAL**  
UTAH FOR TAKING ACTION  
TO PROTECT UTAH