Emerging Issues and Trends in Fueling Systems
Where are we headed?

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The Energy Policy act of 2005 set the **Renewable Fuels Standard**

The **Energy Independence Security Act** of 2007 mandates that we as a country use 36 billion gallons of renewable fuel a year by 2022. Within that, the **RFS 2** gives us annual ascending targets within 3 renewable fuel categories:

- Advanced Bio Fuel
- Biomass-Based Diesel
- Cellulosic Biofuel
According to NACS 2018 Retail Fueling report:

There are currently about 153,237 retail convenience stores. There are 121,998 that sell fuel. (As of December 31, 2018) A decrease of 554 stores from 2017

About **1600** new stores are built a year.

About **62.3%** of retail fueling facilities are individually owned.

**$56K** is the average profit of a retail fueling facility.

As of the end of 2017 there are about 4300 selling E85

About 1200 selling mid range ethanol.

Today there are more than 1800 sites selling E15.

**20%** of underground storage tanks are over 30 years old.
There are more than 260 million LDVs in U.S.

Source: Wards Intelligence
New LDV sales average about 6.5% of the fleet
How Fast Can The Market Turn?

New Vehicles as Share of Fleet on the Road

Data and Assumptions
Source: U.S. EIA Annual Energy Outlook 2018
EIA LDV Fleet Size - 243.8 million in 2018
EIA LDV Sales Forecast - 16.1 million/year average

At least 9 Years for New Vehicles to Amass 50% Share of Fleet
What about the used market?

69.9% of vehicles sold in 2018 were pre-owned

Used Vehicles Sold

Source: Edmunds
23% of used vehicles sold were 3 years old

4.3 million vehicles expected to come off lease this year. 43% of leased vehicles in 2016 were SUVs. 99.1% of all LDVs sold in 2016 were liquid-fuel powered.
New LDV sales market evolves slowly

Share of Sales by Powertrain

- **Fuel Cell**: 2.1%, 1.9%, 2.1%, 2.0%, 2.3%
- **Nat Gas**: 0.25%, 0.40%, 0.53%, 0.71%, 0.50%
- **Hybrid**: 3.2%, 2.8%, 3.2%, 3.2%, 3.3%
- **PHEV**: 0.41%, 0.46%, 0.58%, 1.20%, 1.51%
- **Electric**: 94.0%, 94.4%, 93.5%, 92.9%, 92.4%

**Source**: Wards intelligence
CUVs continue to dominate market at 39%
EVs offered primarily in declining car segment

LDV and EV Sales by Class of Vehicle
(Jan - June 2019)

- Cars: 29.6%
- CUVs: 39.1%
- Light Trucks: 31.3%
- EVs: 84.1%

Source: Wards intelligence

Fuels Institute

Source: Fuels Institute
Based on looking at all the numbers of LDV population and turnover, what can we anticipate in 2040?

What will be the percentage of Electric Vehicles?

What will be the percentage of Liquid Fueled Vehicles?

What will those liquid fuels be? And what will influence them?

What should we be prepared for with the fueling system infrastructure?
The typical fueling system is made up of about 60 components.
U.L. 971 and 971A Listed Pipe
Pipe dope, also known as thread sealant, is used with threaded ends to make threaded joints leak-proof and pressure tight.
ASHLAND, Ky. (WSAZ) -- UPDATE 4/15/19 @ 11:47 a.m.
A busy part of downtown Ashland is shut down to traffic after an explosion at a gas station.
People at neighboring businesses say they heard a loud boom and felt shaking just before 9 a.m. Monday.
An underground tank exploded at the Sunoco on the corner of Winchester Avenue and 22nd Street. A witness tells WSAZ she saw flames shoot 15 feet into the air.
The Ashland Fire Department used foam to extinguish the giant flames.
Nobody was hurt.
Investigators are not sure about what caused the explosion. The Kentucky Fire Marshal's Office is at the scene.
The Ashland Police Department is asking drivers to avoid the area. Winchester Ave. is closed from 21st Street to 23rd Street.
Keep checking the WSAZ app and WSAZ.com for the latest information.

Friday, July 26, 2019 CHICAGO (WLS) -- A man is hospitalized with serious burns caused by a flash fire at a gas station on Chicago's South Side
The man was working on a gas station tank system in a manhole when the fuel ignited at the Shell on 95th and Stony Island Friday morning, according to a tweet by Chicago Fire.
Introduction of water into the UST system
How do we change or control the tank environment?
Current Solutions

Install the correct equipment

Inspect and maintain equipment

Clean and treat fuel and system proactively
Diesel Exhaust Fluid ("DEF")

Topic worthy of discussion?

Diesel Exhaust Fluid is not a regulated product. It is not under the governance of the EPA.

Due to the need for DEF in diesel trucks, DEF will be sold at sites on Indian land. DEF Tanks will be installed and buried on Indian Land.

Does your Tribe have a plan? Food for thought and discussion.
Thank You