

# Marcellus Works Briefing



Office of House Republican Whip, Stan Saylor

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# What is Marcellus Works

Marcellus Works is a legislative package designed to bring natural gas fleet vehicles into mainstream usage in Pennsylvania.





# Why Marcellus Works

- Given the large reserves of natural gas in the Marcellus Shale, utilization of natural gas as a vehicle fuel will drive demand for a Pennsylvania resource while incubating the natural gas vehicle industry in the Commonwealth.
- Rather than simply creating jobs on the supply-side (drilling), Marcellus works will boost job creation on the supply and demand-side (natural gas vehicle industry)



# Why Marcellus Works?

When compared to gasoline, natural gas reduces emissions:

- Carbon monoxide (CO) by 70 percent – 90 percent
- Nitrogen oxides (NO<sub>x</sub>) by 75 – 95 percent
- Carbon dioxide (CO<sub>2</sub>) by 20 – 30 percent



# Natural Gas Vehicles

- There are about 110,000 NGVs on U.S. roads today and more than 12 million worldwide.
- There are about 1,000 NGV fueling stations in the U.S. and about half of them are open to the public.
- In the United States, about 30 different manufacturers produce 100 models of light, medium and heavy-duty vehicles and engines.





# Natural Gas Vehicle Terms

Dedicated CNG or LNG – A vehicle which runs solely on compressed natural gas or liquefied natural gas.

Bi-fuel – A vehicle which can run on natural gas or gasoline or a vehicle which can run on natural gas or diesel.

GGE – Gasoline gallon equivalent of natural gas.

# CNG vs. LNG

## CNG

- CNG vehicles are limited by their fuel storage capacity.
- CNG fuel tanks are more affordable and less complex than LNG fuel tanks.

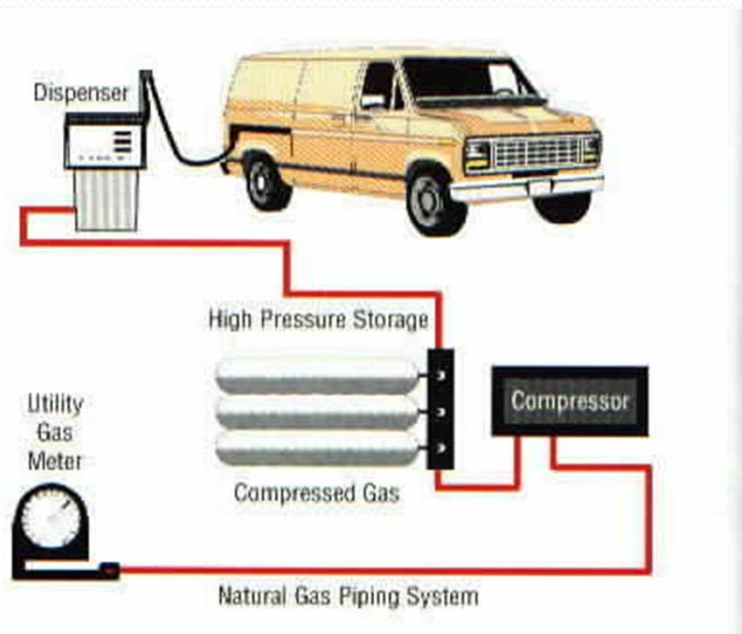
## LNG

- Liquefied natural gas (LNG) has to be cryogenically cooled to negative 260 degrees Fahrenheit.
- LNG requires a much smaller storage volume as compared to CNG for the same amount of energy.
- LNG is limited to vehicles which are in relatively constant use.

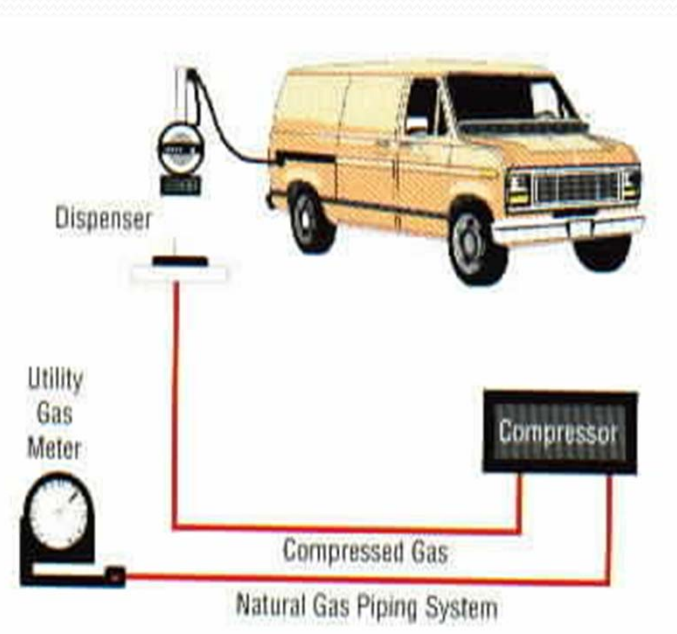


# Fast-Fill vs. Time-Fill Station

## Fast-Fill



## Time-Fill

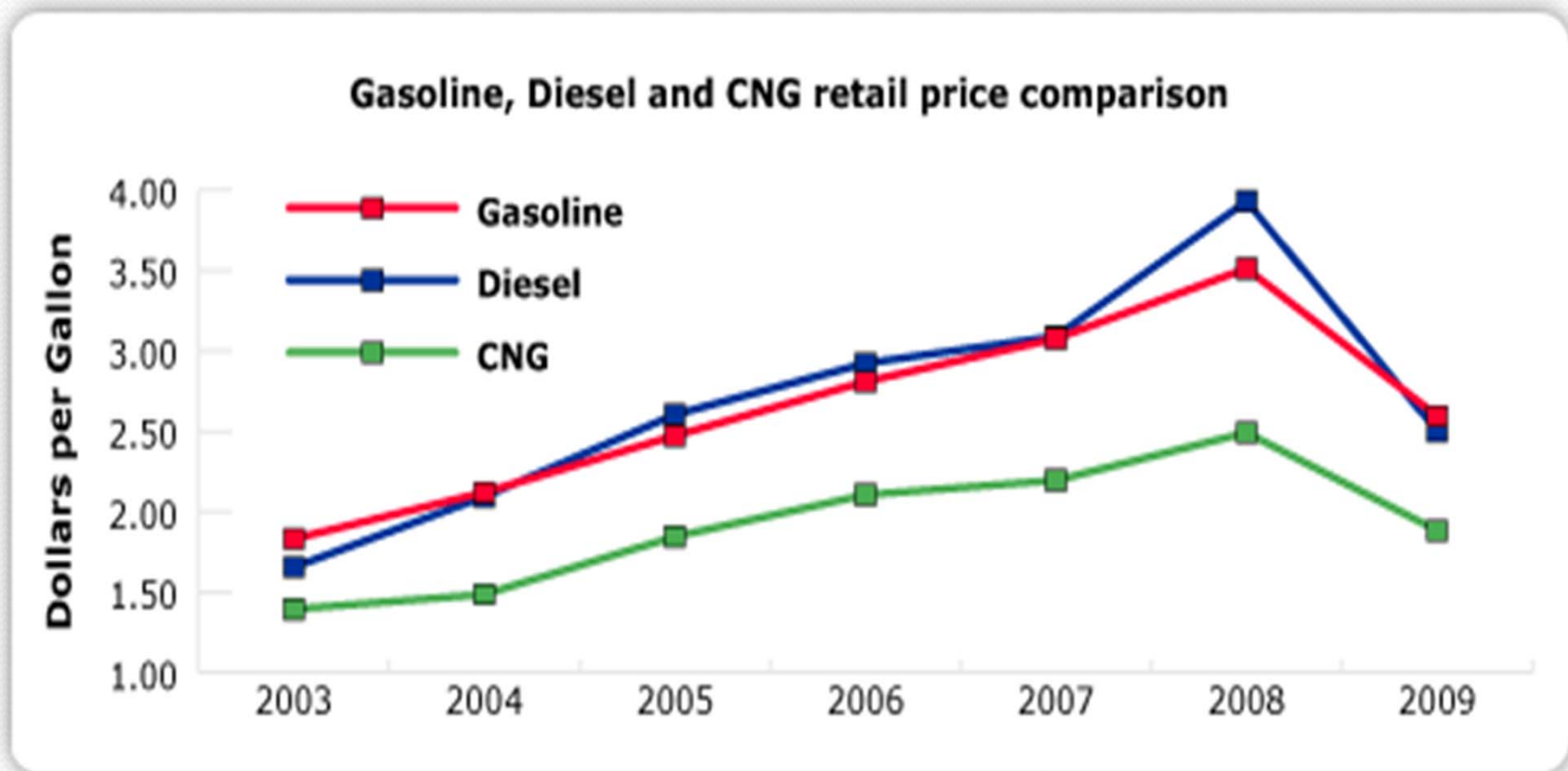


# LNG





# CNG Prices





# Rate of Return

## Trash Truck Example:

Average Miles Traveled per Year / Vehicle Miles per Gallon = **Fuel Usage**

$$25,000 / 2.5 \text{ miles per gallon} = 10,000 \text{ gge}$$

Fuel Usage per Year \* Savings per Gallon = **Yearly Savings**

$$10,000 * \$1.25 = \$12,500$$

Incremental Cost / Yearly Savings = **Rate of Return**

$$\$30,000 / \$12,500 = 2.4 \text{ years}$$



# Rate of Return

## **Honda Civic GX**

Average Miles Traveled per Year / Vehicle Miles per Gallon =

**Fuel Usage**  $25,000/36 \text{ miles} = 695 \text{ gge}$

Fuel Usage per Year \* Savings per Gallon = **Yearly Savings**

$695 * \$1.00 = \$695$

Incremental Cost / Yearly Savings = **Rate of Return**

$\$10,000 / \$695 = 14.3 \text{ years or } 357,500 \text{ miles}$





# Conclusions on Rate of Return

- The rate of return on investment is in correlation to fuel usage.
- Therefore, as a general rule, the heavier the vehicle the faster the rate of return.





# Natural Gas Fleet Vehicles

Given the lack of a national CNG or LNG fueling infrastructure, the range of travel is limited.

Therefore, the natural gas vehicle industry has focused on fleet vehicles which return to a central location where they can be refueled.

The prime targets of the industry have been fleets which have very low gas mileage such as mass transit buses and trash trucks.



# Marcellus Works Principles

- Economic Viability
- Leverage Private Financing When Possible
- Right Size Subsidies
- Incubate a New Promising Industry rather than Create and Sustain.
- Facilitate the Growth of a New Infrastructure Network



# Old Vs. New Marcellus Works

## Old

- Transition State Fleet Vehicles
- Private Fleet Tax Credits
- Mass Transit Grants
- Municipal Fleet Grants
- Natural Gas Corridor using the Turnpike
- Infrastructure Tax Credit

## New

- Private Fleet Tax Credits
- Mass Transit Grants and Revolving Fund
- Mass Transit CNG Mandate
- Keystone Fuel Incentive Fund
  - Includes grants for municipalities
- Natural Gas Corridor Tax Credit
- Repeal of CARB Section 2030.





# Main Differences

- Removed the state vehicle transition portion
- Principle: Economic Viability
  - The largest fleet operated by DGS is the temporary fleet. Most of these are small passenger vehicles which would not have a rate of return and would therefore be an added cost rather than a savings.



# Main Differences

- The Infrastructure Tax Credit has been Removed.
- Applied Principles: Leverage private financing when possible.  
Incubate a new promising industry rather than create and sustain.
- Private investment is available to build natural gas stations if there is a demand of roughly 900 gge per day.



# Main Differences

- The Turnpike as a clean natural gas corridor has been removed.
- Principle: Facilitate the growth of a new infrastructure network
  - This portion was replaced by the natural gas corridor tax credit which applies to several corridors including the turnpike and will provide for increased competition and a wider fueling network.





# Marcellus Works



# Private Fleet Tax Credits

## **House Bill 1083 – Representative Stan Saylor**

- For CNG and LNG vehicles.
- 60 percent tax credit for vehicles with a gross weight of 14,000 to 26,000 lbs. Incremental cost is capped at \$25,000.
- 50 percent tax credit for vehicles with a gross weight that exceeds 26,000 lbs. Incremental cost is capped at \$50,000.



# Private Fleet Tax Credit

- The ranking of the applications are according to projected gasoline gallon equivalent usage.
  - Applicants may submit a group application in order to increase the ranking of their application if they have agreed to use a central fueling facility.
  - Reasoning: It gives larger fleets priority while allowing small businesses to take advantage of the fleet tax credits.





# Private Fleet Tax Credit

- Minimum natural gas usage must be at least 900 gge per day.
  - This ensures the fleet can support a fueling station and attract private capital.
- The minimum usage provision is waived if there is a natural gas fueling station the fleet can utilize.
  - This encourages additional support of operating stations and avoids over saturation of the market.



# Private Fleet Vehicles

- Priority is given to applications which include the creation of a public natural gas station though there is no funding for the station itself.
- Eligible vehicles are limited to dedicated CNG and LNG vehicles
  - Bi-fuel vehicles are ideal for the private citizen, however, they are not ideal for creating a support base for fueling infrastructure since their natural gas fuel utilization would remain a variable.



# Private Fleet Tax Credit

- These tax credits are transferable.
- If they are not transferable, the tax credit will not always advance the rate of return enough to incentivize companies to switch to natural gas thus, shrinking the potential pool of conversions.





# Clean Transit Program I

## House Bill 1085 – Representative Kathy Watson

- \$7.5 million – one time transfer from the Oil and Gas Lease Fund.
- Large Mass Transit Revolving Fund (SEPTA, PAT and LeHigh)
  - For 100 percent of the state and local share of the bus purchase as applied only to the incremental cost of federally assisted CNG bus purchases.
  - 50 percent of the incremental cost for non-federally assisted CNG bus purchases.



# Clean Transit Program I

- Priority will be given to those applications which provide for public CNG fueling.
- The transit authority must contract with a private provider to build, operate and maintain the CNG station.
- The station must be built solely with private funds.
  - Principle: Leverage private financing when possible





# Clean Transit Program II

## **House Bill 1084 – Representative Dan Moul**

- Small Mass Transit Grants (\$5 million one-time transfer from the Oil and Gas Lease Fund)
  - For 100 percent of the state and local share of a CNG bus purchase as applied only to the incremental cost of federally assisted bus purchases.
  - 50 percent of the incremental cost for non-federally assisted CNG bus purchases.
  - The transit authority must contract with a private provider to build, operate and maintain the CNG station.





# Large Mass Transit CNG Mandate

## **House Bill 1086 – Representative Jim Marshall**

- For public mass transit systems with 245,000 revenue vehicle hours or more. (SEPTA, PAT and LeHigh)
  - In years 2012-2016, 25% of all new buses purchased shall use natural gas as their fuel source.
  - In years 2017-2021, 50% of all new buses purchased shall use natural gas as their fuel source.
  - In years 2022-2026, 75% of all new buses purchased shall use natural gas as their fuel source.
  - Beginning in 2027, 100% of all new buses purchased shall use natural gas as their fuel source.



# Keystone Fuel Incentive Fund

## **House Bill 1088 – Representative Tina Pickett**

- Reworks the Alternative Fuel Incentive Fund to provide solely for compressed natural gas vehicles.
- Grants cover the incremental cost.
- Limited to vehicles with a gross weight of 14,000 lbs. or more.





# Keystone Fuel Incentive Fund

- Minimum daily fuel usage of 900 gasoline gallon equivalents.
  - Waived if a CNG fueling facility is already available.
- Priority is given to applications which create a public CNG fueling station.
- Public entities must contract with a private provider to build, operate and maintain the CNG station.





# Keystone Fuel Incentive Fund

- Eligible Entities
  - Municipalities
  - Political Subdivisions
  - School Districts
  - Private Sector
- Municipalities, political subdivisions and school districts receive priority.



# Keystone Fuel Incentive Fund

- 10 percent of the fund is dedicated for natural gas taxis.
- Therefore, these applicants are exempt from the 14,000 lbs. weight restriction and the minimum daily fuel usage requirements.



# Keystone Fuel Incentive Fund

- 20 percent carve out for bi-fuel vehicles for private individuals.
- Minimum of 5 gge CNG capacity.
- As public stations are built in local communities, these grants will allow residents to take advantage of this affordable clean burning fuel.
- These grants will also drive up demand for personal vehicles which will in turn drive down the production costs in the long run which has been the case with CNG trash trucks.





# Natural Gas Corridor Tax Credit

## House Bill 1087 – Representative Gordon Denlinger

- Eligibility

- A company must demonstrate to the department the following:

- A comprehensive plan to build one or more natural gas fueling stations (CNG or LCNG) or to add compressed natural gas fueling capacity to one or more existing stations which sells gasoline or a combination thereof.

\*LCNG – Liquefied and compressed natural gas infrastructure.



# Natural Gas Corridor Tax Credit

- Eligibility
  - The stations must be open to the public.
  - The stations must be located within 2 mile of an eligible corridor.
  - Eligible corridors include the PA Turnpike, I-78, I-79, I-80, I-81 and I-83.



# Natural Gas Corridor Tax Credit

- Prioritization
  - Ranking will be according to the total number of stations proposed to be built along a single eligible corridor or a continuous travel route utilizing the eligible corridors. Stations must have a spacing of at least 50 miles from another natural gas station which is within 2 miles of the eligible corridor and a maximum spacing of 100 miles.





# Natural Gas Corridor Tax Credit

- Tax Credit
  - Worth 50 percent of the total cost of the natural gas station or the total cost of adding natural gas fueling capacity to an existing station which sells gasoline.
  - The total cost is capped at \$500,000.
  - The tax credit is transferable.



# Repeal of CARB Regulation

## **House Bill 1089 – Representative Scott Perry**

- Repeals California Air Resource Board regulation 2030.
- EPA standards are already in place and the CARB standards add an additional costly certification to vehicle manufacturers.
- This costly certification effectively prohibits bi-fuel vehicles in Pennsylvania.

Questions?