WSDOT Propane Autogas Pilot

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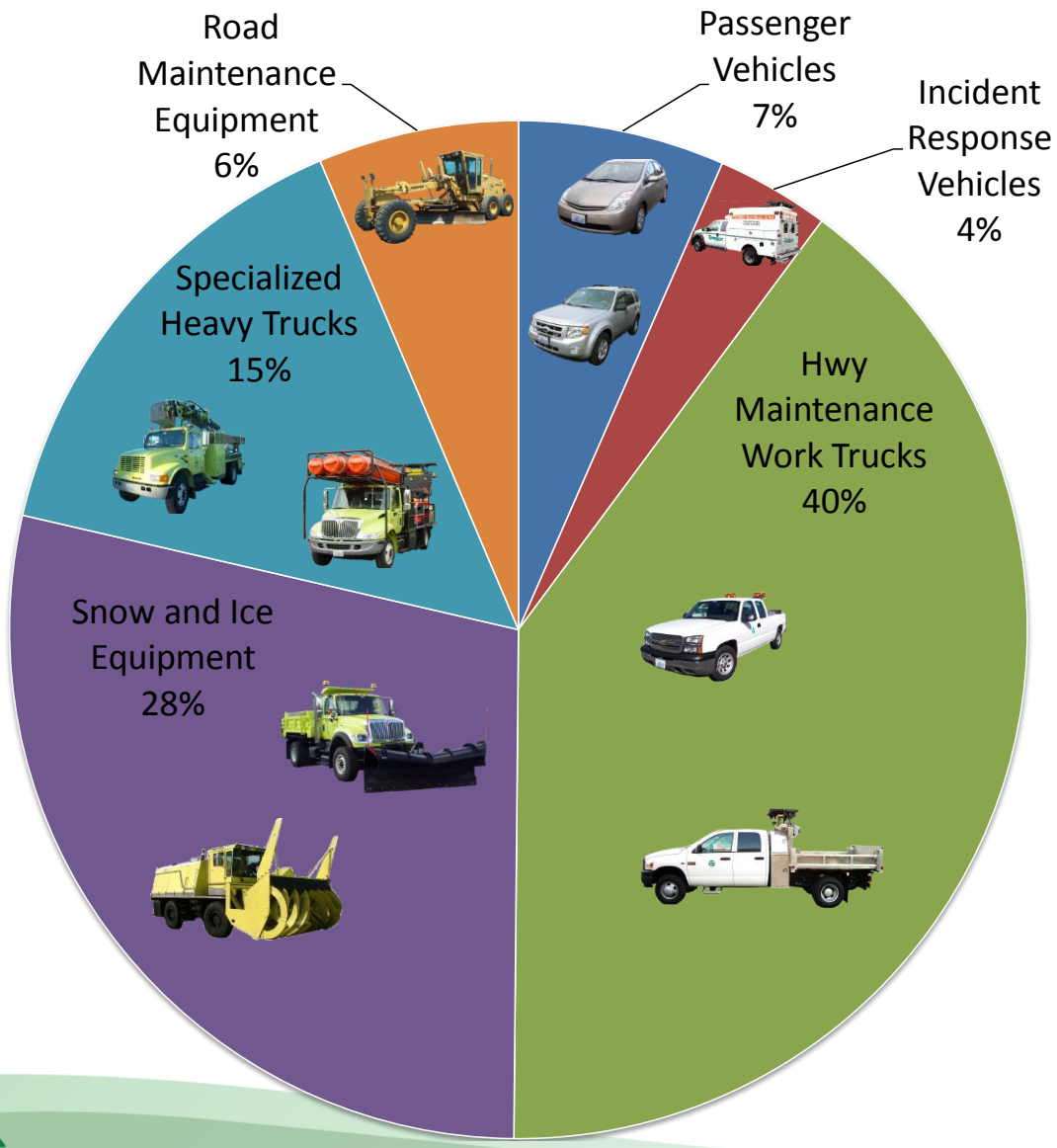
2012 Fuel Usage Snapshot:



	Gallons
Diesel:	2,395,965
Gas:	1,505,775
Total	3,901,740

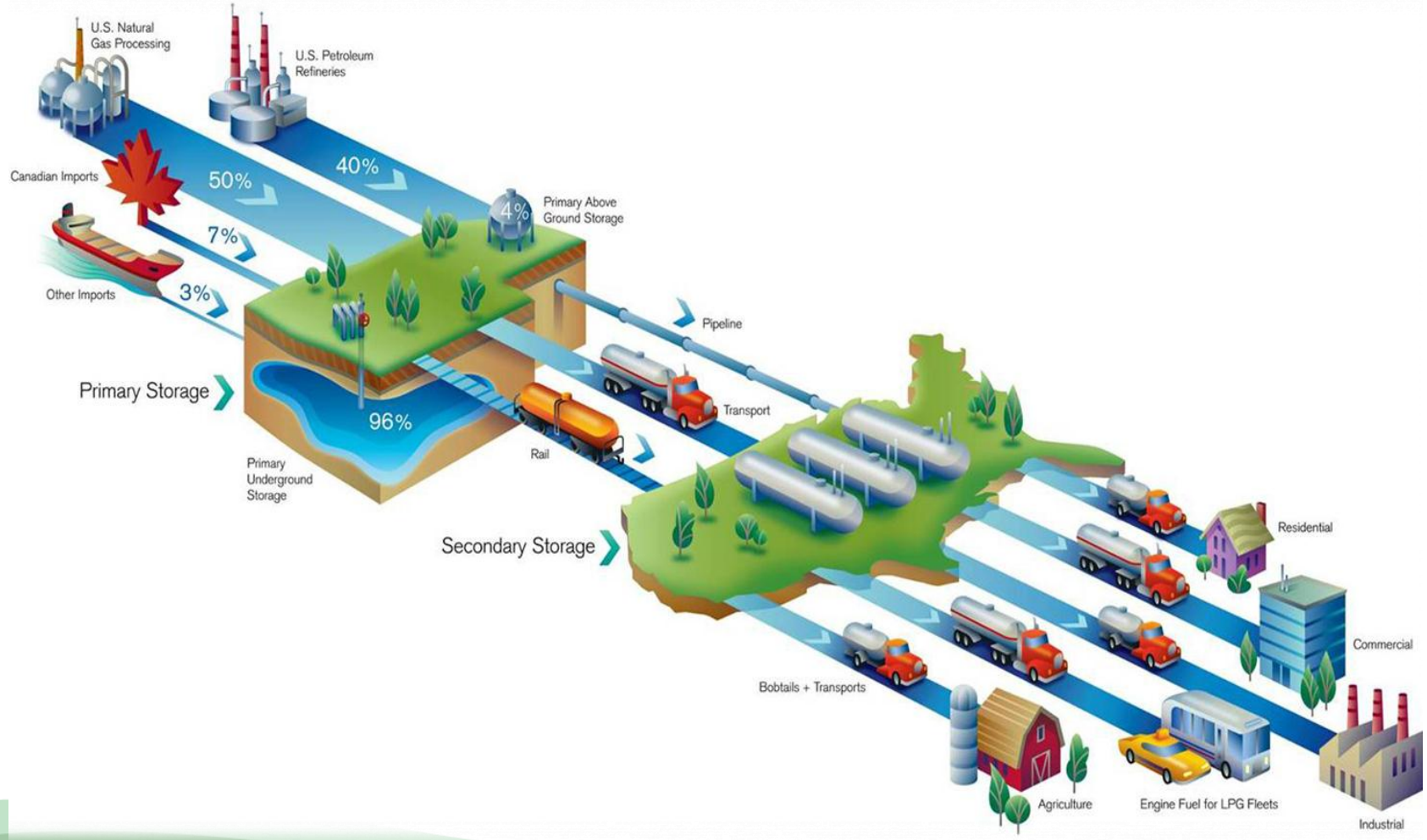
Washington State Mandates

- Governor directed 5% fuel reduction
- Reduce emissions below 2005 levels
- Use 20% biodiesel
- By 2013, 40% of all fuel use must be from electricity or biofuel
- By 2015, 100% of all fuel use must be from electricity or biofuel

Compressed natural gas, liquefied natural gas, or propane may be substituted for electricity or biofuel if the department of commerce determines that electricity and biofuel are not reasonably available.

Why Propane Autogas?

Domestically Produced



Reduced Emissions

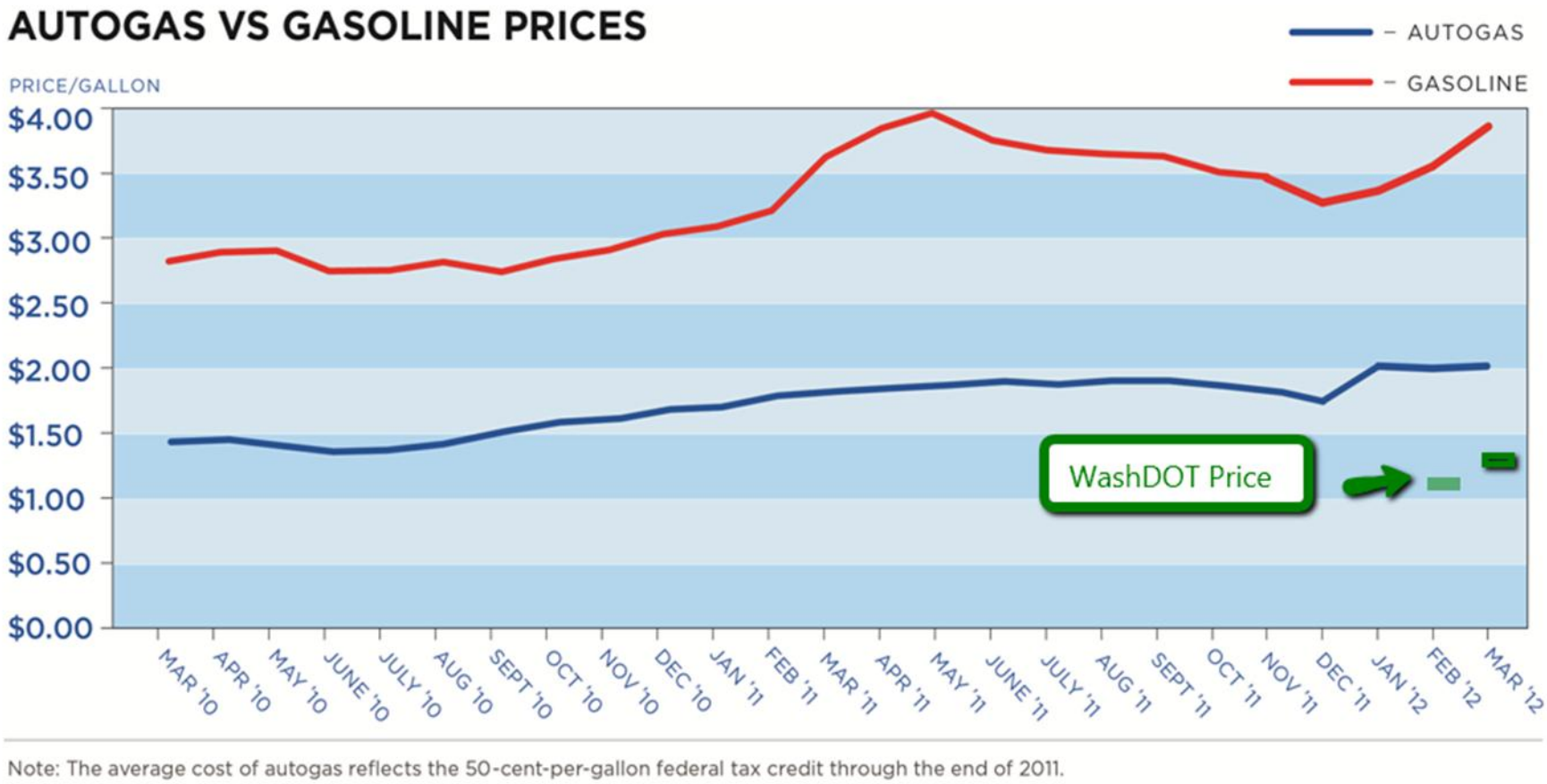
- 12% Less $C0_2$
- 20% Less Nitrogen Oxide
- 60% Less Carbon Monoxide

Fewer Lbs. of CO_2 Produced Compared to Gasoline:

Work Trucks 3/4 - 1 Ton

- 4,669 lbs. per year

Reduced Fuel Costs



Note: The average cost of autogas reflects the 50-cent-per-gallon federal tax credit through the end of 2011.

WSDOT Autogas Pilot

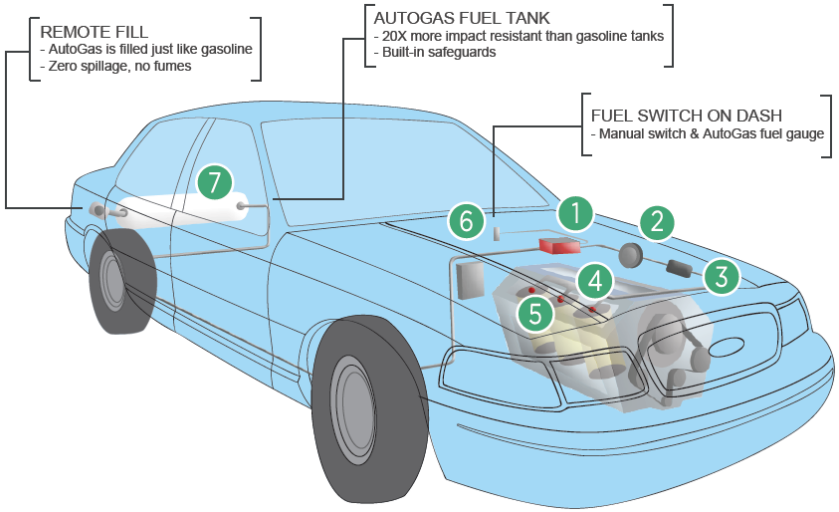
- User Buy In
- Test Site in Vancouver
- 30 vehicles
- Mechanic Training
- Integrated with our Fueling System

Propane Autogas Systems

Dedicated Autogas

Duel Fuel

Autogas or Gasoline



Vapor Injection System


FLAMMABLE GAS
PROPANE
PROPANE VEHICLE FUEL
NO SMOKING
Alliance AutoGas

Conversion Costs

WSDOT Installing Kits	Cost
Conversion Kit*	$5,000
WSDOT Labor to install 20 to 25 hrs @$40.00 hr	$1,000
Install costs to hook up vendors fueling station to ours	$1,000
	$7,000
*Kit is reusable	

Private Sector Installation	Cost
Labor**	$500
Conversion Kit*	$5,000
	$5,500
** minimum order is 150 vehicles	

Fuel Costs
Autogas cost per gallon is based on the state contract for propane
State Contract price for propane does not vary in price for customer tanks or leased tanks

WSDOT Autogas Pilot Results

Customer Satisfaction

- Performance
- Range
- Ease of Fueling

Maintenance

- PM Intervals
- Longevity of system
- Vendor Support

Emission Reductions

Fuel Cost Savings

Fuel Costs

Work Truck 3/4 - 1 Ton

Data as of July 2012	Gas	Autogas	Variance
Avg. MPG	9.30	8.48	(0.8)
Cost per Gallon	$3.30	$1.34	$1.96
Cost per Mile	$0.36	$0.16	$0.20
Cost over Lifecycle (150,000 miles)	$54,000	$24,000	
Potential Savings		**$30,000**	

Work Truck 1/2 Ton & Full Size SUV

Data as of July 2012	Gas	Autogas	Variance
Avg. MPG	15.64	13.29	(2.4)
Cost per Gallon	$3.30	$1.34	$1.96
Cost per Mile	$0.21	$0.10	$0.11
Cost over Lifecycle (150,000 miles)	$31,500	$15,000	
Potential Savings		**$16,500**	

Sedan, Mid Size

Data as of July 2012	Gas	Autogas	Variance
Avg. MPG	25.25	20.69	(4.6)
Cost per Gallon	$3.30	$1.34	$1.96
Cost per Mile	$0.13	$0.06	$0.07
Cost over Lifecycle (125,000 miles)	$16,250	$7,500	
Potential Savings		**$8,750**	

Emissions

	Baseline Year		
Source of GHG Emissions	**2005 Total GHG Emissions**	***2020 Target GHG Emissions MT CO_2e**	****2020 Target Reduction MT CO_2e**
Vehicle Fleet	34,352	29,199	(5,153)

- We have about 1000 gas work trucks
- Based on pilot data, the potential exists to save 2 MT CO2e per work truck per year
- By replacing half of our work trucks, over the next 10 years, we could reduce CO2e by 1000 MT per year

- Due to the 36 mpg requirement for new car purchases, propane would not be a viable option