Petroleum Displacement Program Annual Report
FY 2011-2012

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North Carolina FY 2011-2012
Petroleum Displacement Program Report

Prepared by the
North Carolina Solar Center's
Clean Transportation Program

NORTH CAROLINA
Solar Center

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Petroleum Displacement Program Report

Executive Summary

A FY 04-05 special budget provision required a 20% reduction (adjusted to 17.5 based on provision criteria) in petroleum use by the state vehicle fleet. Implementation of the Petroleum Displacement Plan (PDP) requirement in FY 11-12 has resulted in a 19.9% reduction in petroleum use by state fleet vehicles as compared to the baseline of fuel use established in FY 04-05. This data is based on an adjusted total accounting for justified growth in the state fleet over this time period. Thirty-six reporting state agencies have displaced petroleum use in vehicles through the use of alternative fuels, advanced vehicle technology, conservation and efficiency measures.

Analyses of FY11-12 reports from state fleet representatives show that nearly 5.2 million gallons of petroleum were displaced through the following efforts. Of the 19.92% displaced:

- 4.94% displaced through E10 use
- 0.49% displaced through E85 use
- 4.75% displaced through biodiesel use
- 0.01% displaced through CNG use
- 9.73% displaced through increased conservation (reduced vehicle miles) and efficiency compared to the adjusted[1] baseline; estimated 5.45% from conservation, and 4.28% from efficiency

This 19.9% reduction exceeded the stated 17.5 percent reduction goal established through the FY 04-05 fuel use baseline, 22 state agencies met their individual PDP goals. Vehicle count rose slightly while vehicle miles traveled (VMT) declined as a residual effect of the economic downturn. Based on qualitative fleet reports some of the increase in fleet size is temporary, as vehicles were added but the process for scrapping or surplusing the replaced vehicles had not yet been completed by the end of this fiscal year. The proportion of alternative fueled vehicles increased slightly, due in large part to the addition of flex fuel vehicles (FFVs), but the proportion of alternative fuel used in those vehicles declined slightly from the previous year due largely to the lack of access to (and/or use of) E85 in those FFVs. State fleet E85 use is likely under reported because credit card reporting to MFM of fuel sales does not consistently or accurately report all E85 sales.

The largest 10 fleets account for 96.5% of the total reported fuel use and account for 96.9% of the petroleum displacement. Given their size, any changes in petroleum use by these fleets can significantly impact the overall progress from year to year.

[1] Adjustments to baseline to account for justified growth have been made on previous reports for: Davidson County CC; East Carolina University; Elizabeth City State University; NC Dept. of Admin., Motor Fleet Management; *NC Dept. of Agriculture and Consumer Services; NC Dept. of Correction; *NC Dept. of Environment and Natural Resources; NC State University; UNC-Charlotte; Winston-Salem State University, and UNC-Wilmington. * indicated baseline adjustment received in FY11-12

Significant changes include:

- The FY11-12 state fleet vehicle count (27,855) and was slightly higher than the 27,288 [adjusted] vehicle baseline.
- Gasoline is no longer offered on the state contract and about 98% of all gasoline sold in North Carolina now contains up to a 10% blend of ethanol[2]. E10(10% ethanol-90% gasoline fuel blend) has almost completely replaced gasoline as the most commonly used fuel by state fleet vehicles with 13.8 million gallons of E10 used in FY11-12. This is a slight increase compared to the previous year, and more than 21 times the baseline year use when ethanol was not routinely blended with gasoline.
- B20 biodiesel (20% biodiesel, 80% diesel usage) declined by 11% compared to FY10-11, falling to 7,239,984 gallons compared to more than 8,237,385 gallons in FY10-11. While use of ultra-low sulfur diesel (ULSD) fuel use increased 1.2% to 1.86 million gallons from 1.84 million gallons from last year's report, B20 still retained its lead against ULSD as the second most common fuel used by state fleet vehicles. B20 use in FY11-12 was 3.9 times higher compared to the baseline year.
- Flex fuel vehicles (FFVs) capable of using E85 now comprise 28% of the state fleet. E85 use increased from 418,174 gallons in FY 10-11 to 418,597 gallons in FY11-12. The total consumption is still limited compared to its full potential. E85 use per FFV declined from 58 gallons per vehicle in FY10-11 to 55 gallons per vehicle in FY11-12. If fueled consistently with E85, each FFV should utilize an average of more than 430 gallons of E85 annually based on current VMT per FFV reported the and average fuel economy for a FFV. State fleet E85 use is likely under reported because credit card reporting to MFM of fuels sales does not consistently or accurately report all E85 sales.
- The average price for E85 in FY11-12 was 44 cents less than E10.
- Conservation (reduced mileage) and efficiency gains through mechanical, process and behavior changes saved over 2.5 million gallons of fuel over the baseline reporting year, yielding significant savings to the state via avoided fuel costs.
- Motor Fleet Management policies changed in November 2011 and became effective January 2012 eliminating the minimum monthly mileage requirement on leased vehicles

The 2011 NC General Assembly extended the PDP requirements through FY 2016, allowing for a more robust comparison and foundation for petroleum reduction planning. Recommendations for continued PDP success include:

- Executive office involvement to raise awareness of the fiscal and environmental benefits of petroleum use reduction.
- Review of MFM vehicle purchase restrictions.

[2] Because E10 is not labeled at commercial station pumps, some organizations continue to report E10 use as gasoline. Efforts are underway to resolve this reporting discrepancy in the future.

- Improve the tracking of fuel purchases to enable and encourage the use of available E85.
- Enable increased use of alternative fuel and of advanced technology vehicles.
- Increase the coordination and incentives for E85 refueling, and expanded alternative fuel and advanced vehicle technology use.

Background

The August 2005 North Carolina State Budget included Section 19.5 of Session Law 2005-276, requiring a 20 percent displacement of petroleum consumption in the state fleet by January 1, 2010. Based on this provision, a FY04-05 baseline established total petroleum use for the state at 26.1 million gallons. Exclusions were made for off-road equipment, vehicles not in a covered fleet (agencies with fewer than 10 vehicles) and all county-titled vehicles, including school buses. Emergency/educational vehicles were required to meet a 10% petroleum reduction goal. These directives, combined with the obligated fleet 20% reduction, yields an overall 17.5% (or 4.6 million gallon) reduction goal. Several agencies requested and were granted baseline adjustments based on justified increases in fleet size and vehicle miles driven as stated in Footnote 1. This action resulted in a change of to the current baseline to 26.6 million gallons. With a 17.5% reduction requirement, a collective goal of 21.4 million gallons of annual petroleum use (i.e. a reduction of 4.5 million gallons of petroleum) was established to meet the petroleum displacement plan (PDP) requirement.

Sixty-nine agencies and community colleges have fewer than 10 on-road state-titled vehicles and are exempt from the PDP requirements, based on the original analysis to establish the FY04-05 reporting year baseline. Thirty six agencies[3], universities and community colleges must submit a report by September 1 of each year that documents vehicle and fuel use. In addition, participating agencies are requested to submit a plan that outlines strategies they will undertake to reach their displacement requirement. This information is assessed annually to evaluate progress of individual agency's goals, and aggregated to determine achievement of the State's overall goal. For FY11-12 all 36 participating agencies reported data**.**

In 2009 the PDP provision was extended to July 1, 2016 by the General Assembly in Section 14.14(b) of Session Law 2009-451. The "Current Operations and Capital Improvements Appropriations Act of 2011" Section 19.5(c) of S.L. 2005-276 (page 222) was amended to extend the PDP again through September 1, 2016.

The genesis of this report is stated in the provision: "Agencies shall report by September 1, 2006, and annually thereafter through September 1, 2016, to the State Energy Office within the Department of Commerce on the efforts undertaken to achieve the reductions. The State Energy Office shall compile and

[3] One organization that had previously submitted annual reports closed their vehicle technology program and in FY11-12 all state-titled vehicles were sold or scrapped, thus making them exempt from PDP reporting.

forward a report to the Joint Legislative Commission on Governmental Operations by November 1, 2006, and annually thereafter through November 1, 2016, on the agencies' progress in meeting their plans."

State Petroleum Displacement Activities and Achievements

In FY 11-12 the Petroleum Displacement Plan (PDP) requirement resulted in a 19.92% reduction in petroleum use by state fleet vehicles as compared to the FY04-05 baseline. Figure 1 below illustrates the annual percent displacement. Displacement in FY11-12 hit a new "high", topping the previous record set in FY08-09. Due to on-going baseline adjustments, there may be numbers in this report that differ from previous reports (i.e. percentage changes from baseline year). The displacement compared to the original baseline is included (in blue below) along with the displacement compared to the adjusted baseline (in red below).

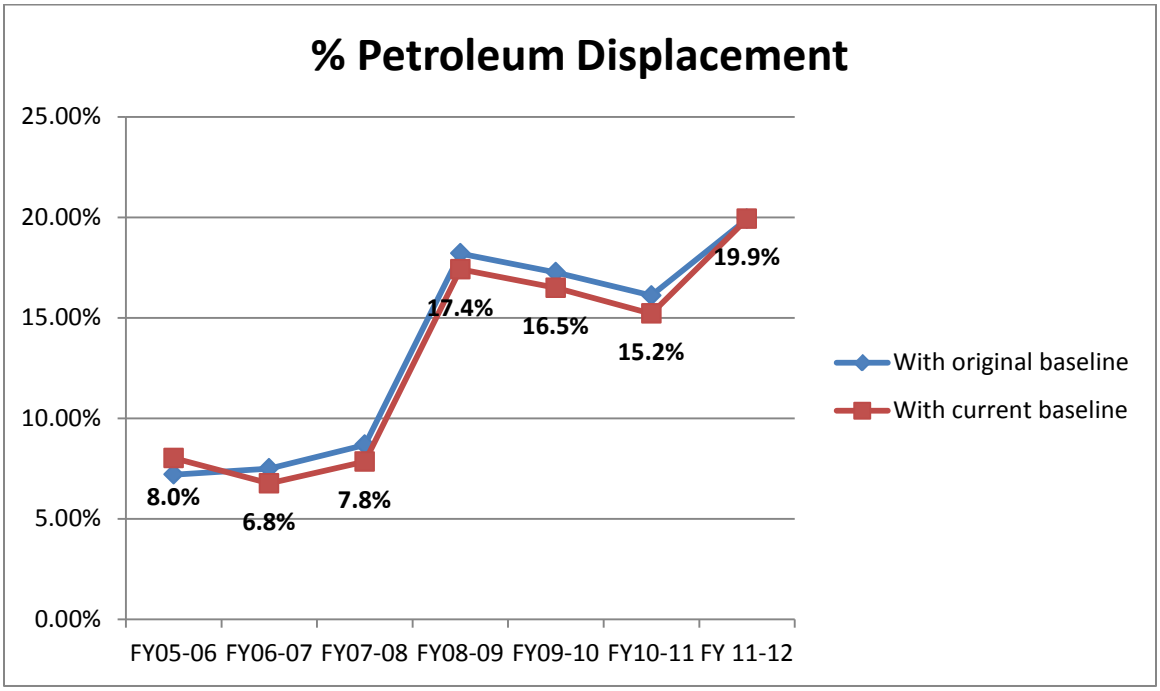

Figure 1. Annual petroleum displacement from baseline year (original and adjusted – data labels are for adjusted).

The following agencies met or exceeded their PDP goal as compared to the baseline year. The agencies in the bold font met or exceeded their PDP goal for the first time in FY11-12.

State agencies that have met or exceeded their 2011-12 PDP goal:

1. Caldwell Community College;
2. Davidson County Community College;
3. East Carolina University;
4. Fayetteville State University;
5. Johnston Community College;
6. NC A&T State University;

7. NC Department of Agriculture and Consumer Services;[4]
8. NC Department of Correction;
9. NC Department of Environment and Natural Resources;
10. NC Department of Health & Human Services;
11. NC Department of Juvenile Justice;
12. NC Department of Transportation;
13. NC State Ports Authority;
14. Rowan-Cabarrus Community College;
15. UNC-Asheville;
16. UNC-Chapel Hill;
17. UNC-Charlotte;
18. UNC-Hospitals;
19. UNC-Pembroke and
20. UNC-TV.

Two agencies that had previously met or exceeded PDP goal have slipped below their displacement target:

1. NC School of Science and Math is at +19% compared to -28% the previous year. Their B20/diesel mix improved from last year, but the VMT increased by 8% and the total fuel use increased by 69%, resulting in a decrease in efficiency. In small fleets, notable increase in fuel use generates large fluctuations.
2. NC School of the Arts is at -15% compared to -22% the previous year. Their improved efficiency was not enough to counter a 5% increase in new vehicles, and the 18% increase in vehicle miles driven between FY10-11 and FY11-12.

Vehicles

As illustrated in Figure 2, the FY11-12 report accounts for 27,855[5] vehicles from 36 agencies by vehicle type. The overall number of vehicles in the state fleet increased by 567 over the baseline year's 27,288. The proportion of gasoline vehicles has steadily decreased, while FFVs purchases have increased.

[4] NCDACS absorbed several high-performing sections that formerly belonged to the NC Department of Environment and Natural Resources which generated a baseline adjustment and significantly affected their vehicle and fuel mix

[5] Many state fleet organizations do not have comprehensive, centralized vehicle tracking systems, making it very likely that a significant number of state-titled vehicles go unreported each year.

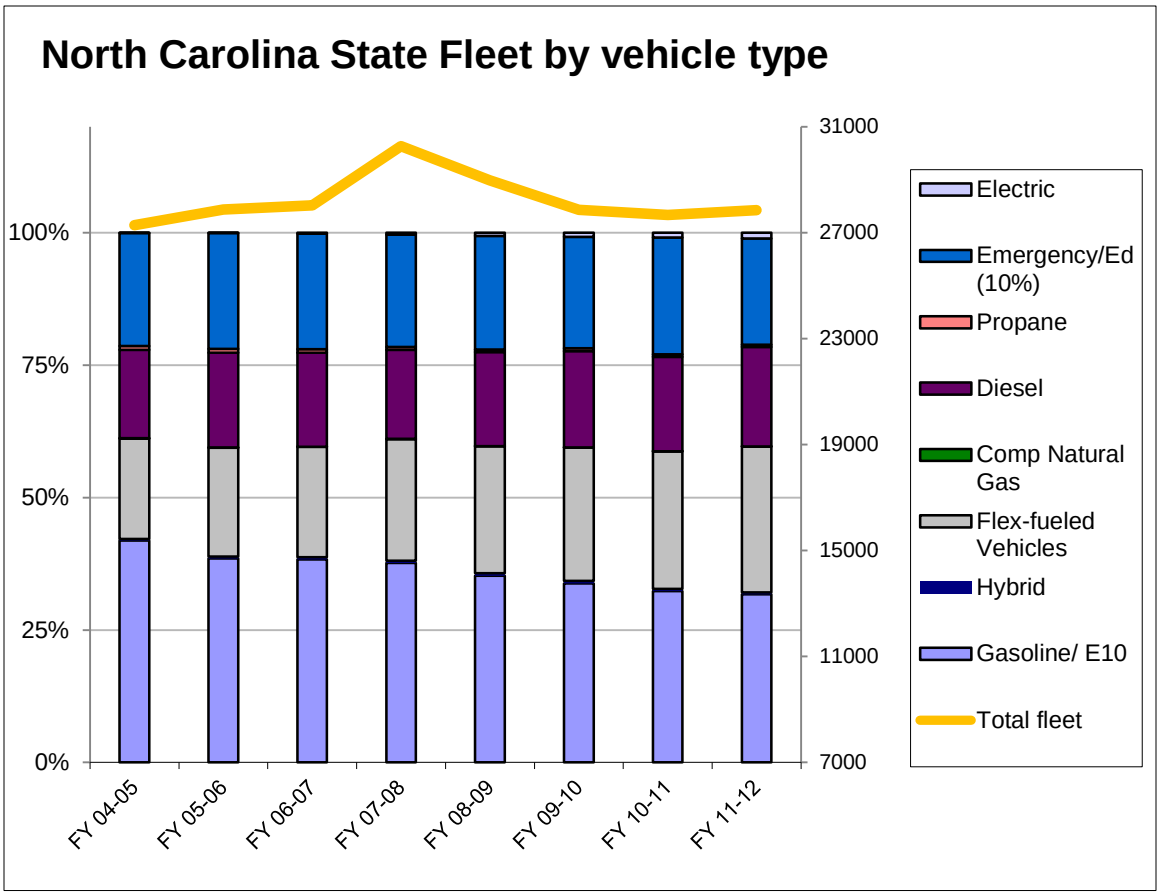

Figure 2. The proportions of the state fleet by vehicle type, each bar representing 100% of the vehicles for that reporting year. The yellow line is the total vehicle count for the state fleet.

Electric vehicles (EV) are a small portion of the state fleet. However; the EV 'footprint' has increased dramatically from 16 Neighborhood Electric Vehicles (NEVs), in the baseline year to 292 as documented in Table 1 below.

State Vehicle Types and Percent Change between FY04-05, FY10-11 and FY11-12				
Vehicle Type	# Baseline, adjusted (FY04-05)	# FY10-11	# FY11-12	% change from baseline
Gasoline only	11436	8952	8847	-22.64%
E85 capable, flex-fuel (FFVs)	5168	7186	7670	48.40%
Diesel	4559	4940	5225	14.60%
Electric	16	239	292	1738.96%
Propane	192	130	115	-40.23
Hybrid Electric	85	118	104	22.32%
Natural Gas (CNG)	15	4	5	-65.61
*Emergency and Educational[6]	5817	6099	5597	-3.78%
TOTAL	**27288**	**27,668**	**27855**	**+2.08%**

Table 1. *The "Emergency and Educational" category includes vehicles that have been modified specifically for that purpose, which are only required to meet a 10% petroleum displacement goal.

[6] A significant number of Emergency and Educational vehicles used by the Department of Crime Control and Public Safety are flex-fueled vehicles (roughly 14% of their fleet in FY11-12), which are not included in the FFV count above to avoid duplication of total vehicle counting.

The vehicle count increased slightly this year after previous declines, due in part to delays in scrapping and surplusing of old vehicles after their replacements had been purchased. As indicated above, the most significant positive changes in the state fleet composition between FY10-11 and FY11-12 were in CNG (+25% by going from just four vehicles to five- purchased by UNC Asheville), Electric (+17.27%), and FFVs (+6.74%). UNC Charlotte added 20 additional neighborhood electric vehicles (NEVs) in FY11-12 to their existing fleet of 106, Winston-Salem State University added nine, Western Carolina University added eight, and UNC Wilmington added six NEVs. All of the vehicles reported here are NEVs or low-speed electric vehicles. Since the beginning of this project, this year is the first time a fleet has reported purchasing a full-sized plug in hybrid electric vehicle. Davidson County Community College purchased a Chevy Volt, which will be included in next year's report.

E85 fuel use has increased by 59% compared to the baseline year, while FFV acquisitions increased 48% in that same timeframe (not including those added to the Emergency/Educational fleet tally). However, with FFVs now accounting for 28% of the state fleet, E85 use still only accounts for less than 2.0% of total fuel usage and contributes just 0.49% towards the total petroleum reduction. Fuel card transactions do not reflect E85 fuel purchases.

Fuel

Total fuel usage decreased, reversing a short trend of increased fuel use. The total petroleum use in FY11-12 was 20.7 million gallons, representing a 19.9% petroleum displacement from the adjusted baseline year's 25.9 million gallons, thus exceeding the PDP goal of 17.5% for the state fleet. Of that 19.9% percent, approximately 10.2% petroleum displacement can be attributed to the use of alternative fuels, – ethanol blends of gasoline account for 5.4%, and biodiesel blends account for 4.8% of petroleum displacement. Table 2 illustrates the petroleum displacement from E10, E85, and various biodiesel blends. Compressed natural gas (CNG) use increased very slightly in FY11-12, while propane use decreased very slightly, but both remained lower than in the baseline year, and therefore did not contribute to reaching the petroleum displacement goal.

Petroleum Displacement by Activity, FY11-12 compared to baseline		
Alt Fuel	% petroleum displaced by:	Approx. gallons displaced above baseline use
E10	4.94%	1,279,704
Biodiesel (B5,B20, B100)	4.75%	1,229,811
E85	0.49%	127,995
Propane and CNG	0.01%	1,623
Other contributors (conservation & efficiency)	9.73%	2,521,040
Total	*19.9%*	*5,160,173*

Table 2. Petroleum displacement from E10, E85, various biodiesel blends, conservation and efficiency .

The Figure below illustrates the change in alternative fuels in comparison to petroleum fuels. Reported gasoline use has declined sharply. Based on fuel

sampling, it is estimated that 98% of gasoline sold in NC is actually E10. Thus, the amount of E10 gasoline used is likely over-reported. Future PDP reports will continue to address the significant changes in alternative fuel use and availability in relation to baseline fuel use and petroleum displacement goals.

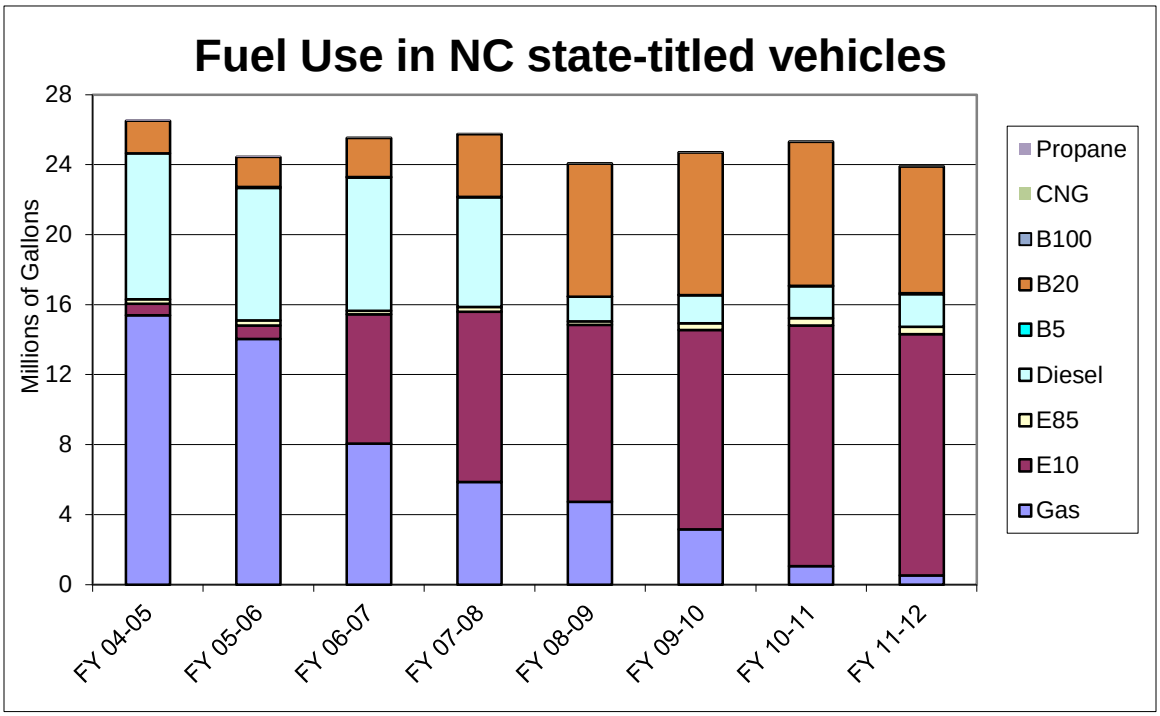

Figure 3. Total state fleet fuel used by type, FY 04-05 to FY11-12. Does not include "gallons of gasoline equivalent" for electric vehicle use.

Figure 4 shows fuel use grouped by type to better illustrate the changes in each individual fuel type over the years. Note the continued replacement of gasoline with E10, and of diesel with B20. E85 use remains low but has increased slightly over the years, and now sits at nearly 59% higher than the baseline year.

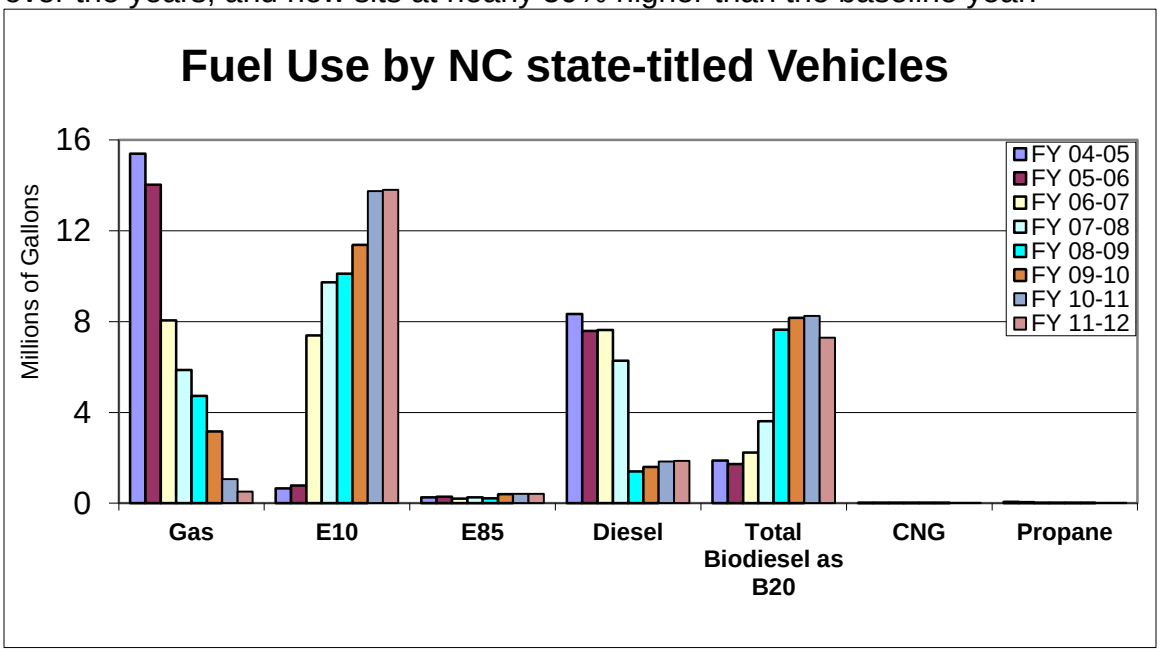

Figure 4. Comparison of fuel use over the 8-year reporting period by fuel type. B5, B100, CNG and Propane use is too small in comparison to other fuels to register properly on this graph.

Alternative fuel use decreased slightly from FY10-11 but remains much higher than the baseline year as indicated in Figure 4. However, while Figure 4 illustrates an on-going drop in gasoline use since the baseline year, a continued increase in diesel fuel since FY08-09 is noted. Figure 5 below shows petroleum use (gasoline + diesel) as a percentage of total fuel used. For the first time since fuel and vehicle tracking began in FY04-05, the proportion of alternative fuel use declined.

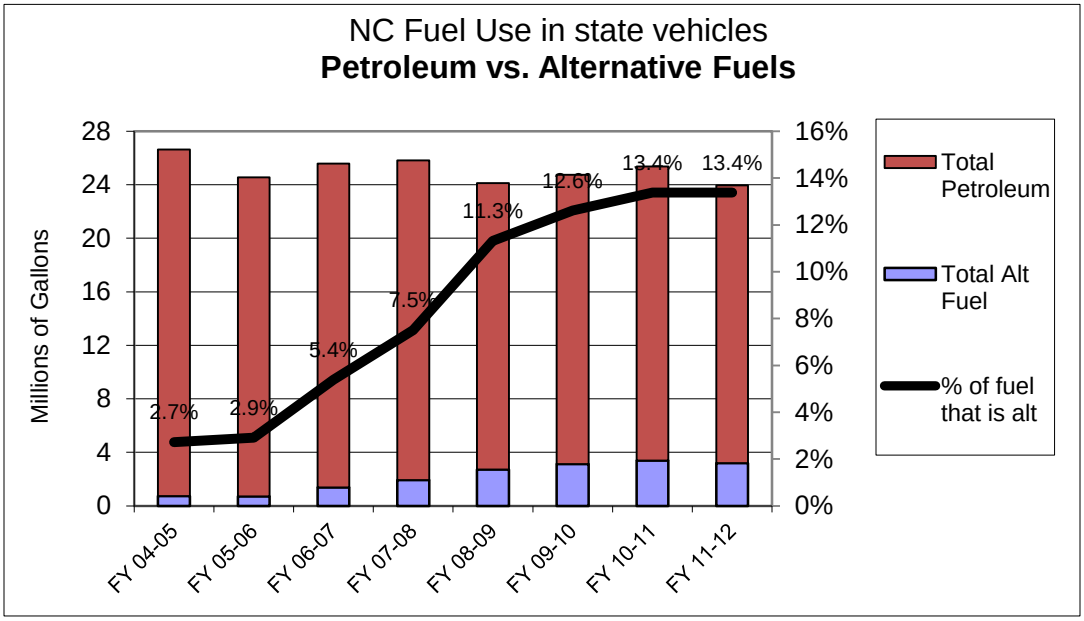

Figure 5. Total fuel use declined after 2 years of increases. Alternative fuels decreased in FY11-12 compared to the previous year.

E10 is being used at a rate of approximately 12-to-1 over conventional gasoline within the fleet, but this increase is mainly due to the automatic and industry-wide replacement of gasoline with E10. Biodiesel use including B5 (5% biodiesel ,95% ultra-low sulfur diesel-ULSD), B20 and B100 has climbed 289% over conventional ULSD since the '04-05 baseline while the use of E85 use has increased 58%.

In previous reporting years, the North Carolina Department of Transportation, (DOT) opened five E85 stations, joining the North Carolina Department of Administration Motor Fleet Management (MFM) and two universities to provide state accessible E85 refueling infrastructure. In addition to these stations there are also 19 commercial E85 stations in North Carolina.

Figure 6 below shows current state E85 fueling sites.

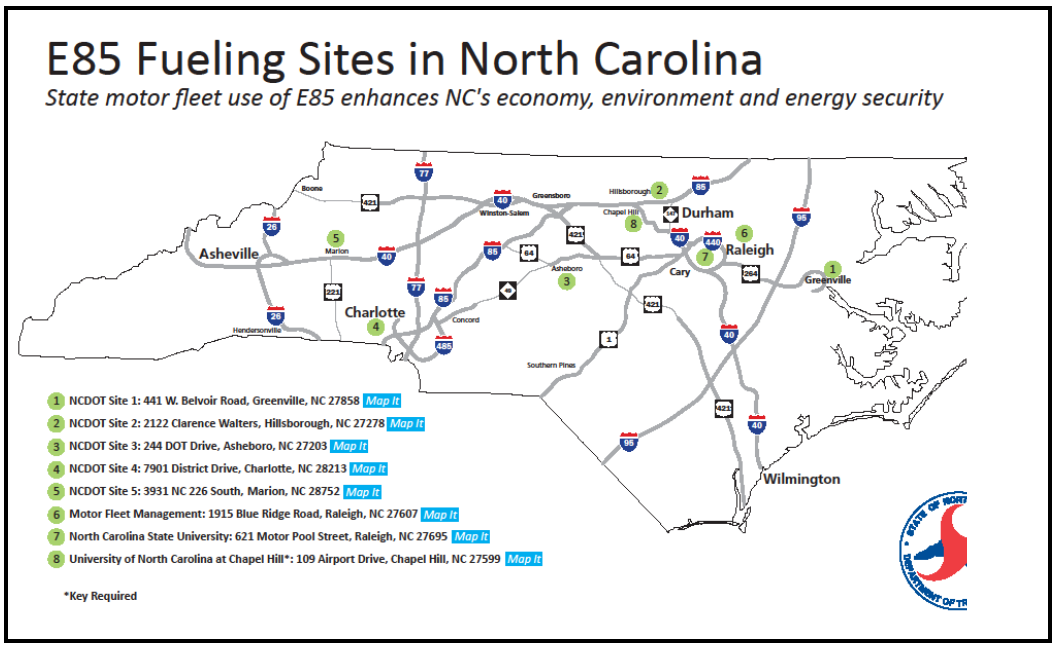

Figure 6: DOT created E85 station map.

However, despite these installations E85 use has still not increased anywhere near the pace of increasing FFVs. E85 use is further hampered by a decline in vehicle use: on average, FFVs were driven less this year, 10,414 miles per vehicle compared to 11,378 in FY10-11 and 12,255 in the baseline year. More support for ensuring the increased use of E85 in FFVs, in coordination with other agencies that operate FFVs, is needed.

A total of 10 agencies reported E85[7] use in FY11-12 the:

- Department of Administration Motor Fleet Management;
- Department of Agriculture & Consumer Services;
- Department of Crime Control & Public Safety;
- East Carolina State University Transit;
- Department of Environment and Natural Resources;
- Department of Transportation;
- North Carolina State University;
- University of North Carolina at Chapel Hill;
- University of North Carolina at Charlotte, and
- University of North Carolina Hospitals.

Most fleets get their E85 at DOT, MFM or from their own E85 fueling stations, but a few get their E85 at commercial/retail locations, and record fuel use either by receipt tracking or estimation based on vehicle mileage logs. UNC TV and Winston Salem State University reported E85 use in FY10-11, but did not report alternative fuel use for this year's report.

[7] Accurately tracking E85 use remains complicated by the fact that many state vehicles stop at commercial service stations that dispense E85 (19 across the state). Fuel dispensed at these stations is not always reported accurately through the state fuel card system by fuel type. It is very likely that E85 use by the state fleet is actually higher than reported, but there is no way at present to determine how much higher.

Figure 7 below illustrates E85 use by organization. With the greatest number of E85-capable FFVs, Dept. of Administration Motor Fleet Management has consistently been the largest user of E85 despite more recent declines in use. The E85 use by the Department of Environment and Natural Resources, which expanded dramatically in FY09-10, declined sharply in FY10-11 and then again modestly in FY11-12. Seven organizations expanded E85 use in FY11-12 compared to the previous year. They are as follows: East Carolina State University's Transit operation, NC Dept. of Agriculture, NC DOT, NC State University, UNC-Chapel Hill, UNC-Charlotte, and UNC Hospitals.

E85 use by Motor Fleet Management, the highest in the state fleet, declined between FY10-11 and FY11-12. This decline is due in large part to FFVs that were once at the motor pool in Raleigh (where there is E85 refueling) being reassigned to other agencies where E85 is not available. While MFM has the largest number of FFVs, they only operate one fueling site. Most of their FFVs are leased by other organizations and used across the state, making it challenging to ensure E85 use in these leased vehicles. Moreover, many MFM FFVs are fueled at commercial service stations using fleet credit cards. With 19 commercial service stations across the state offering E85, it is likely E85 fuel use by state fleet vehicles fueling at commercial service stations is higher than reported[8]. State fleet E85 use is likely under-reported because credit card reporting to MFM of fuel sales does not consistently or accurately report E85 sales.

Among fleets using E85 that have the largest FFV numbers – MFM, DOT, Correction, Crime Control and Public Safety, and UNC Chapel Hill – only UNC Chapel Hill has maintained a notable and steady E85gal/FFV ratio averaging 478 gallons of E85 used per FFV per year.

[8] E85 fuel sales are often incorrectly coded on fuel bills received by MFM. A print receipt may identify the sale as E85 but electronic billing does not reflect the same. MFM is working with Wright Express to resolve this discrepancy

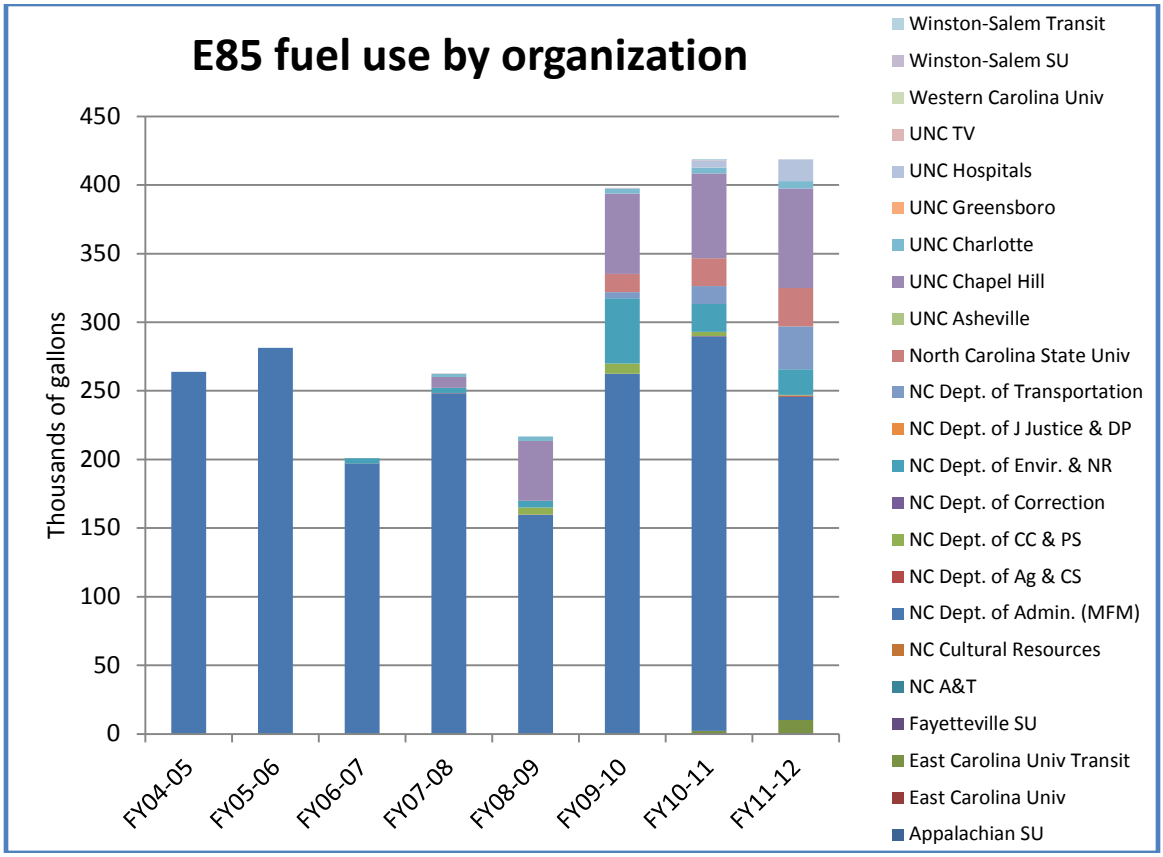

Figure 7. E85 fuel use by organization, FY 04-05 to FY 11-12.

Other fleets with smaller numbers of FFVs have notable E85 use, including UNC Hospitals (6 FFVs), East Carolina State University's Transit operation (5 FFVs), North Carolina State University (28 FFVs), and DENR (69 FFVs). The ratios of E85 fuel use to flex fuel vehicles are far lower than they could be if E85 were made more broadly available. Moreover, the persistently low E85 use numbers make it difficult to justify the expense of new E85 refueling equipment, and difficult to avoid wasted fuel from lack of tank turnover. E85 cannot sit for more than 90 days in the tank without the risk of water contamination. Although there are approximately 8,000 state vehicles capable of using E85, they are not necessarily all deployed near a source of E85. This hampers the expansion of E85 use. However, with state agencies continuing to increase the proportion of FFVs in their fleets, the viability of new E85 stations is increasingly more secure. Inter-agency coordination of state fleet E85 use must become a priority to ensure success for existing and planned E85 fueling sites.

Biodiesel blends, most typically B20, displace diesel fuel and are used nearly 4-to-1 over conventional diesel fuel. While many fleets that switched their diesel stock entirely to biodiesel continue to diligently use B20 or another biodiesel blend (10 fleets used more B20 in FY11-12 compared to the previous year), 11 fleets scaled back on B20 use or switched to lower blends. Twelve (12) organizations with diesel vehicles in their fleets do not use any biodiesel in their fuel mix.

The use of compressed natural gas (CNG) once again increased *very* slightly to 351 gallons of gasoline equivalent (GGE) from the previous year's 321 GGE, but

remained lower than the baseline year's 3,340 GGE. Propane (LPG) decreased slightly from the previous year and also remained well below the use in FY04-05.

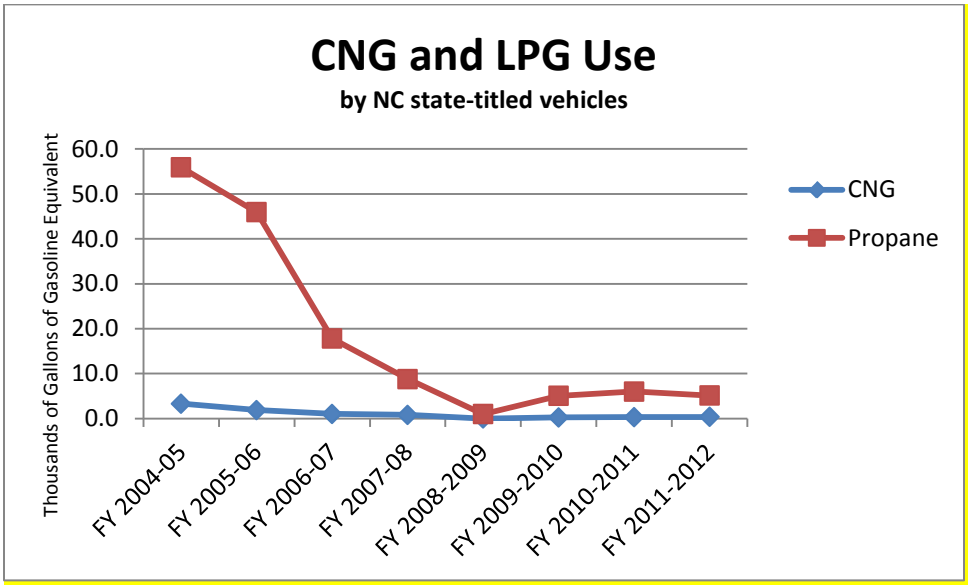

Figure 8. Compressed Natural Gas and Liquefied Propane Gas use throughout PDP reporting period.

CNG has not been broadly used in the state fleet since tracking began in FY04-05, and the decline in LPG has been significant. Both fuels were only used initially by Departments of Transportation (DOT) and Administration (Motor Fleet Management). Other CNG and LPG users over the years since FY04-05 include: Department of Corrections; Department of Agriculture and Consumer Science; Department of Health and Human Services (HHS); UNC-Asheville; and Durham Technical Community College. Only HHS and DOT reported having propane-fueled vehicles in FY11-12, however other fleets have reported that they are currently investigating CNG and/or LPG as an alternative fuel option for their fleet operations in the upcoming year.

Conservation and Efficiency Achievements

To better understand the role conservation (reduced mileage) and efficiency are playing in State PDP accomplishments, questions related to mechanical, processes, or behavior changes were added to the FY09-10 report survey and continued in FY10-11 and FY11-12. Agencies were asked to explain changes in fuel use that cannot be attributed to lower vehicle miles traveled or increased alternative fuel use. Eighteen specific questions were asked to focus on what efficiency methods may have been effective in reducing petroleum consumption. By process of elimination, it is estimated that conservation and efficiency combined account for the largest proportion of petroleum displaced, followed by increased replacement of gasoline and diesel with E10 and biodiesel.

Conservation - Mileage and Fuel Savings

Whereas state agency mileage increased 3.1% between FY09-10 and FY10-11, mileage this year decreased 4% compared to the FY10-11 to 202 million (from 211 million). Reported mileage in FY 2011-12 came in 6% lower than the adjusted baseline (215 million miles). This represents an increase in

conservation that contributed significantly to the improvement from 16% petroleum displacement in FY10-11 to nearly 20% in FY11-12.

When comparing FY11-12 vehicle miles traveled to the baseline year reveals a -6% change, this mileage change does not translate directly to changes in petroleum use due to the wide spectrum of vehicle types in use across all reporting organizations. A correlation analysis of VMT to petroleum use was performed, revealing a 97.24% correlation between the two data sets. Subtracting 97.24% from 100 yields a 2.76% reduction in petroleum used as a result of conservation compared to the baseline year. Thus the 6% reduction in state vehicle miles traveled accounts for 5.45% attributed to conservation of the 19.9% petroleum displacement.

Because so many of the state fleet vehicles are owned by Motor Fleet Management and leased to agencies and organizations, Motor Fleet rules covering lease and vehicle use can heavily influence conservation. The Motor Fleet Rate Model was changed in November 2011 (effective January 2012) to eliminate the minimum monthly mileage requirement for organizations using leased vehicles. Agencies are now charged only for the miles they drive. This reduces the pressure on organizations to drive the vehicles even when they don't need to in order to reach the minimum threshold. Removal of the mileage threshold is a step in the direction of supporting petroleum reduction through conservation. Nevertheless, agencies still face pressure to 'use-or-lose' the vehicles they lease and may feel compelled to put unnecessary miles on them to avoid the vehicle reallocated to another organization.

Efficiency – Miles per gallon equivalent

Efficiency gains can be achieved through myriad methods, including driver training (emphasizing driving the speed limit, avoiding rapid starts and stops, tire pressure checks, etc.), removing excess weight from the vehicle, vehicle reassignments, route optimization, purchase of more fuel efficient vehicles, idle reduction technology, and fuel tracking procedures or software that enable implementation of a comprehensive fuel efficiency program. The U.S. Department of Energy[9] states that the fuel economy benefits for these various efforts can range from 2-33%. Efficiency-focused driving habits are relayed to fleets through driver training programs as well as decals and driver placards placed in vehicles.

Efficiency may be more properly defined as the efforts to make a given amount of fuel go further, e.g. driving further on the same amount of fuel. The most widely applied measure of efficiency for vehicles is miles per gallon (mpg). Although easily understood as applied on a "by vehicle" basis, it becomes much more complicated when applied on an aggregated "by fleet" basis. Most fleets are comprised of a wide variety of vehicle types, ages, and use patterns, and the NC DOT – always one of the largest fuel users in the state – does not report mileage at all (though they are working on a solution to this data omission, they remained unable to report mileage at the time of this report). Using the over-simplified

[4] U.S. Department of Energy. Driving More Efficiently. http://www.fueleconomy.gov/feg/driveHabits.shtml

'miles per gallon' measure[10], efficiency increased between FY10-11 (15.86 mpg) and FY11-12 (16.03 mpg), which contributed to petroleum reduction. FY11-12 fuel efficiency using this measure was higher than in the baseline year (15.2 mpg)[11].

Petroleum displacement gained through efficiency improvements are estimated by process of elimination (subtracting displacement from alternative fuels and conservation). In FY11-12, efficiency accounted for 4.28% (1,108,437 gallons) of the 19.92% petroleum reduction seen between FY11-12 and the baseline.

The table below lists the top ten largest state fleets, their change in mileage and petroleum use as compared to FY04-05 baseline as well as new efficiency action put into place this reporting year. Fleets reported using a variety of tools to improve fuel efficiency, including eco-driving training, driver reminders, vehicle selection and reassignment to favor fuel efficiency, and increased vigilance for routine maintenance checks geared towards improving fuel economy.

Organization	**Conserving Action-Miles Change Compared to Baseline**	**Conservation or Efficiency Actions instituted or retained in FY11-12**
DOT	Miles: N/A Petro use: -22%	• Change in fuel accounting system • Routine tire pressure checks • Vehicle MPG evaluation • Eco-driving training, including driver reminders
DOA, Motor Fleet Mgmt. (MFM)	Miles: -8.3% Petro use: -14%	• None reported
Crime Control & Public Safety (CC&PS)	Miles: +3.3% Petro use: -8%	• Vehicle reassignment for fuel efficiency • Routine tire pressure checks • Vehicle MPG evaluation • Driver reminders
Department of Agriculture	Miles: -0.8% Petro use: -49.9%[12]	• Vehicle type changes • Routine tire pressure checks • Eco-driving training, including driver reminders
DENR	Miles: -19% Petro use: -36%	• Vehicle type changes • Change in fuel accounting system • Carpooling policy instituted • Routine tire pressure checks • Idle reduction policy • Driver eco-driving reminders
DHHS	Miles: -13% Petro use: -34%	• None reported

[10] Excluding fuel used by organizations not reporting miles driven (e.g. DOT), as well as miles driven by electric vehicles.
[11] Fuel used by organizations not reporting their miles driven was removed to perform the "mpg" calculation.
[12] NCDACS absorbed several high-performing sections that formerly belonged to the NC Department of Environment and Natural Resources, which generated a baseline adjustment and significantly affected their displacement figures.

Corrections	Miles: -17.7% Petro Use: -26%	• Vehicle type changes • Fuel management system in use • Vehicle reassignment for fuel efficiency • Routine tire pressure checks • Driver reminders to conserve fuel
UNC-CH	Miles: -5.7% Petro use : -21%	• Vehicle type changes • Fuel management system in use • Old vehicles surplused • Switch to synthetic oil • Routine tire pressure checks • Campus Mail Center routed for efficiency
East Carolina University Fleet	Miles: -13.2% Petro use: -24%	• Vehicle type changes • Fuel management system in use • On-board weight reduction • Carpooling policy instituted • Routine tire pressure checks • Vehicle fuel efficiency evaluation • Driver reminders to conserve fuel • Idle reduction policy
ECU- Transit	Miles: +40.2% Petro use: -7%	• Vehicle type changes • Vehicle fuel efficiency evaluation • Idle reduction policy • Driver reminders to conserve fuel • Vehicle assignment for fuel efficiency
NC State University	Miles: -8.8% Petro use: -18%	• Vehicle type changes • Routine tire pressure checks • Eco-driving training • Driver reminders to conserve fuel

Table 3. Ten largest state fleet conservation (as compared to FY 04-05) and new FY 11-12 efficiency actions

General Trends in FY11-12 PDP

- While vehicle count increased by 177 vehicles this year, total vehicle miles driven decreased by 6% resulting in an overall decrease in fuel consumption.
- E10 is widely used statewide at rates that are most likely higher than what is reported above. The retail fuel market has continued to provide E10 at regular, unmarked unleaded dispensers throughout the year, as market price and availability fluctuated. The NC Department of Agriculture and Consumer Services sampled 3,400 retail locations in 2012 and found that nearly 98% of gasoline batches sampled contained ethanol. This is about the same as it was last year.

- E85 infrastructure for state vehicles remains inadequate to meet the fuel needs of FFVs in state fleets, resulting in widespread E10 use in vehicles that could be using high-blend ethanol.
- B20 use has decreased compared to the previous year after five straight years of increased use, and the mix of fuel used in diesel vehicles continued to shift away from B20 and towards diesel. Of the 9.17 million gallons of fuel used in diesel vehicles in FY11-12, only 1.46 millions of those gallons were from biodiesel representing 15.9% of the overall fuel used in diesel vehicles. In FY10-11 this proportion was 16.4% (10.1 million gallons of fuel used in diesel vehicles, 1.65 million gallons of that from non-petroleum (biodiesel) sources), and in FY09-10 it was 16.7% (9.8 million gallons put in diesel vehicles, 1.6 million of which was not petroleum). The reason for this slippage in biodiesel use is not yet fully clear, but likely relates at least in part to availability and price of B20 compared to diesel.
- The use of Neighborhood Electric Vehicles (NEVs) on campuses continues to grow, and the "future plans" section of their report suggests that NEVs will continue to increase in FY12-13.
- Efforts are underway to improve data accuracy, particularly with regards to minimizing incorrect or double-counting of Motor Fleet Management vehicles/fuel/VMT, caused by organizations that have a mix of owned and leased vehicles and tracking systems that make it difficult to parse this information out.

FY11-12 PDP Accomplishments of the 10 Largest Fleets

The 10 largest fleets account for 96.5% of the fuel use, 91.9% of the vehicles, and 95.9% of the reported VMT, and therefore have tremendous influence over petroleum displacement. The 10 largest fleets also account for nearly 97% of the total petroleum displaced through PDP efforts. Therefore it is critical to better understand the methods employed by these fleets to reduce their petroleum use through alternative fuels, conservation and efficiency. The following two figures illustrate the amount of total fuel use by the 10 largest fleets as compared to all others, and the amount of petroleum displaced as compared to all others.

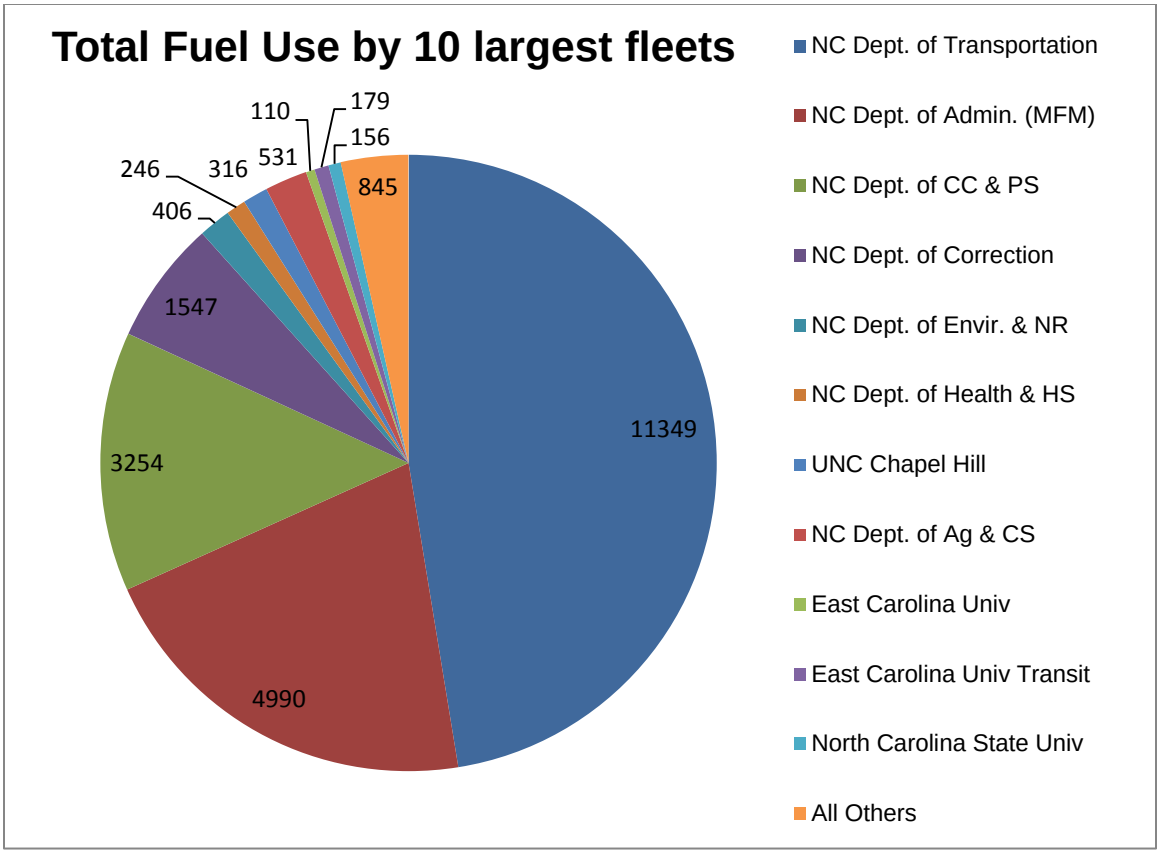

Figure 9. Fuel use (1,000s of gallons) used in FY11-12, 10 largest fleets compared to "All Others".

The Department of Transportation alone accounts for 47.4% of the total state fleet fuel use, and 31.8% of the vehicles.

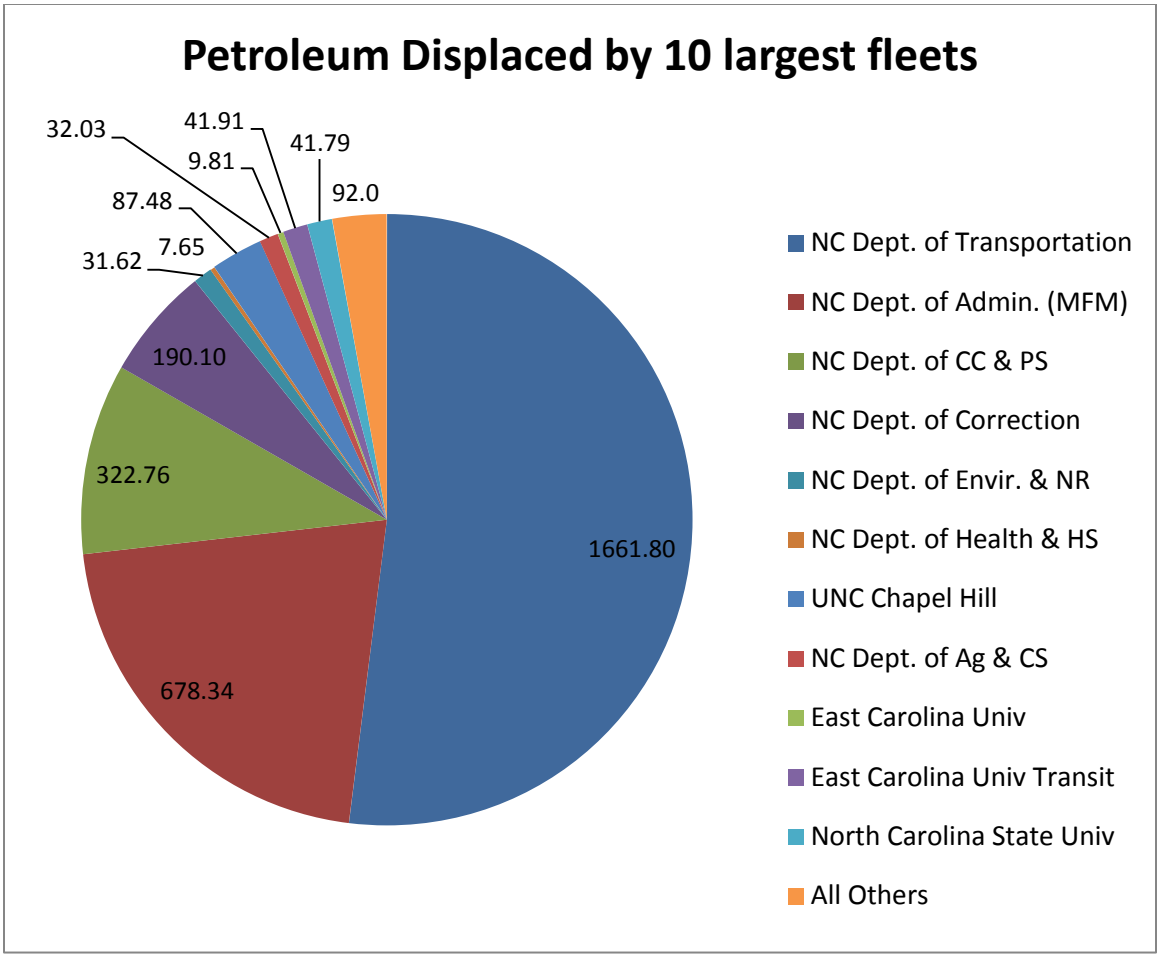

Figure 10. The number of Gallons (in thousands) displaced by the 10 Largest State Fleets compared to 'All Others' in FY11-12.

The ongoing limitation to state spending has continued to delay implementation of some PDP strategies. Most significant is the replacement of older vehicles with newer, more efficient models. MFM had planned to have 218 hybrid electric vehicles by 2009 – currently they have only 99, down from 110 in FY10-11.

Note the following accomplishments of the state's 10 largest fleets in order of largest to smallest. *The more negative the number is, the more petroleum that was displaced.*

1. ***NC Department of Transportation***
   PDP goal: -20%
   FY11-12: -22% (improved from previous year)
   Agency best: -27%, FY08-09
   Vehicle count: 8,855 (increased)
   Notes for FY 11-12: The DOT fleet size increased for the first time in four years, now settling at 3 percent larger than the baseline year. DOT met their PDP goal despite an increase in diesel use from 1.3 million gallons in FY10-11 to 1.4 million on FY11-12. DOT had a decrease in B20 use by 849,000 gallons from 7,213,635 gallons in FY 10-11 to 6,365,372 gallons in FY 11-12. Part of the displacement improvement is attributed to the drop in total fuel use from 12 million gallons in FY10-11 to 11.3 million gallons in FY11-12, and part of the improvement may also be due to

improved fuel efficiency gained from driver eco-training. DOT is in the process of altering their vehicle accounting system, but is still not able to report mileage as part of the PDP. While NC DOT has had FFVs in their fleet since the start of the PDP, they only began using E85 in FY09-10. Since then they have more than doubled their E85 fuel use each year. The E85 fuel used in FY11-12 was approximately 31,000, gallons more than 600% higher than in FY09-10.

2. ***NC Department of Administration – Motor Fleet Management***
   PDP goal: -18.7%
   FY11-12: -14% (slight decrease from previous year)
   Vehicle count: 7,991 (decreased)
   Notes for FY11-12: After a banner year in 2010-2011 MFM lost some ground in FY11-12. Displacement this year was accomplished primarily through an expanded use of E10 (534,000 gallons of E10 in FY 04-05 to 4.74 million gallons in FY 11-12). The fleet was 14% smaller compared to the baseline year, and drove 8.3% fewer miles. State budget restrictions have continued to preclude the planned purchase of many vehicles of all types. A notable decrease in E85 use chipped away at last year's gains, dropping from 287,348 gallons in FY10-11 to 235,463 in FY11-12 (the third lowest since the baseline year). Declines in E85 use were a result of vehicle reassignments to places where E85 is not available. An agency policy change facilitates conservation by removing a minimum mileage requirement for MFM leased vehicles.

3. ***NC Crime Control and Public Safety – State Highway Patrol (SHP)***
   PDP Goal: -10%
   FY11-12: -8% (improved from previous year, and an agency best)
   Vehicle count: 2256 (decreased from last year's high)
   Notes for FY11-12: The displacement of gasoline by E10 has continued to increase since becoming widely available at the State Highway Patrol fueling sites in 2009, with about 3.2 million gallons of E10 used in FY11-12 compared to just 18 thousand gallons of gasoline. Even though E85 fuel is not widely available, the use increased modestly in FY11-12 to approximately 4,000 gallons as compared to approximately 3,000 gallons the previous year.

4. ***NC Department of Correction*****:**
   PDP Goal: -11.6%
   FY11-12: -26% (improved from previous year's progress)
   Agency best: -26% FY09-10, FY11-12
   Vehicle count: 1279 (decreasing)
   Notes for FY11-12: The DOC has again surpassed its petroleum displacement goal. Complete replacement of gasoline with E10 and consistent use of B20 contributed significantly, while further reductions were made through fleet contraction and conservation efforts. DOC continues to increase its fleet of FFVs, but reported only 2,430 gallons of E85 use in FY11-12. While they mostly utilize DOT fueling sites, not all of those currently offer E85.

5. ***NC Department of Environment and Natural Resources (adjusted)***

PDP Goal: -15%
FY11-12: -36% (agency best)
Vehicle count: 873 (2 sections reclassified as Department of Agriculture)
Notes for FY11-12: The department once again exceeded its PDP goal, most significantly through conservation and the use of E10, E85 and B20. DENR had a relative increase in E85 use from the previous year – despite an 11% contraction in flex fueled vehicles after a departmental reorganization, E85 use only dropped by 7%, indicating an increase in E85 per FFV use.

6. ***NC Department of Health and Human Services***
PDP Goal: -19.9%
FY11-12: -34%
Agency best: -42%, FY10-11
Vehicle count: 754 (decreasing)
Notes for FY11-12: The mileage reduction of 14% since last year is likely attributed to residual effects of restrictions imposed by the state budget crisis the year prior. E10 use appeared to rebound after a drop in FY10-11, but propane use continued to drop along with the number of propane vehicles in the fleet.

7. ***UNC Chapel Hill***
PDP Goal: -20%
FY11-12: -21%
Agency best: -23.18% FY09-10
Vehicle count: 709 (decreasing)
Notes for FY11-12: UNC-CH met their PDP goal for the third year in a row, through consistent, diligent application of several alt-fuel use strategies – E10, B20 and E85 use, as well as 26 electric vehicles. Alternative fuel vehicles (diesel, FFVs and electric) now account for 33% of UNC's overall fleet (up from 20% in FY10-11), with plans to continue in this direction. UNC Chapel Hill has had FFVs in their fleet since the start of the PDP, but didn't start using E85 until FY07-08. Since that time, they have increased their E85 use every year, using 73000 gallons in FY11-12 compared to FY07-08, an increase of over 827%. A 6% reduction in miles driven compared to last year helped with petroleum displacement, but a slight drop in fuel efficiency from 10.18 to 9.36 cut into the displacement gains.

8. ***NC Department of Agriculture and Consumer Services (NCDA & CS) (adjusted)***
***PDP Goal:* -14%**
FY11-12: -50% (agency best)
Vehicle count: 1624 (gained two sections from DENR)
Notes for FY11-12: NCDA & CS absorbed two sections that were previously part of the Department of Environment and Natural Resources, which altered their baseline, lowered their displacement goal due to a gain in baseline emergency/educational vehicles, and made year-to-year comparisons of fuel use by type more complicated. Reporting a notable

increase in E85 use and a variety of other displacement tactics employed, NCDA exceeded their PDP goal most likely in part due to absorbing high-achieving sections from DENR.

9. ***East Carolina University (ECU)***
   PDP Goal: -20%
   FY11-12: -24% (agency best) (-7% for ECU Transit, new 'best' for Transit)
   Vehicle count: 391 (increasing) (51 vehicles in ECU Transit fleet)
   Notes for FY11-12: ECU continues to universally utilize E10 in its gasoline fleet. The ECU Transit Operation increased in size from FY10-11 and is now at 18% higher than its first year of tracking, but mileage for the transit fleet declined slightly. Only E10 was used as an alternative fuel for the ECU fleet, while B20, E85, and E10 were used in the Transit fleet.

10. ***NC State University (NCSU)***
    PDP Goal: -20%
    FY11-12: -18% (agency best)
    Vehicle count: 376 (decreasing)
    Notes for FY11-12: Petroleum displacement increased from FY10-11, likely due to the 45% growth in the fleet. The increased use of E10, E85 and B20 helped keep petroleum use from increasing proportionately to the fleet expansion. NCSU now has 67 FFVs, up from 64 in FY10-11. North Carolina State University has had FFVs in their fleet since FY05-06, but they didn't begin using E85 until FY09-10. Since then they have more than doubled their E85 fuel use thanks in large part to the installation of an on-site E85 fueling station. E85 use increased from 20 thousand gallons in FY10-11 to almost 28 thousand in FY11-12, and B20 use increased from 41,500 to almost 45 thousand gallons.

Several of the top 10 fleets have requested and been granted baseline adjustments based on justifiable fleet or mileage increases since the start of this program in FY04-05: The Department of Administration, East Carolina University (including Transit), Department of Corrections, Department of Environment and Natural Resources*, Department of Agriculture and Consumer Services*, and North Carolina State University (*adjustment occurred in FY11-12).

Fuel Pricing, Trends, and Cost Savings

In keeping with the petroleum industry trend in NC of incorporating up to a 10% blend of ethanol in all gasoline, gasoline was completely dropped from the state fuel contract near the beginning of FY11-12, giving way to E10 purchases only by state fleet. E10 transport prices fluctuated throughout the year, averaging $0.60 higher than E10 transport prices in FY10-11 but still trending considerably lower than commercial gasoline prices.

B20 blends over this past fiscal year averaged $0.17 more per gallon than ultra-low sulfur diesel, while E85 prices averaged $0.44 lower, or 15.2% less than E10. Propane transport loads were added to the state fuel contract, and the fiscal

year average price for this fuel was $1.41 lower than E10. Compressed natural gas (CNG) prices set by the industry were quoted as $1.53 per gallon of gasoline equivalent[13].

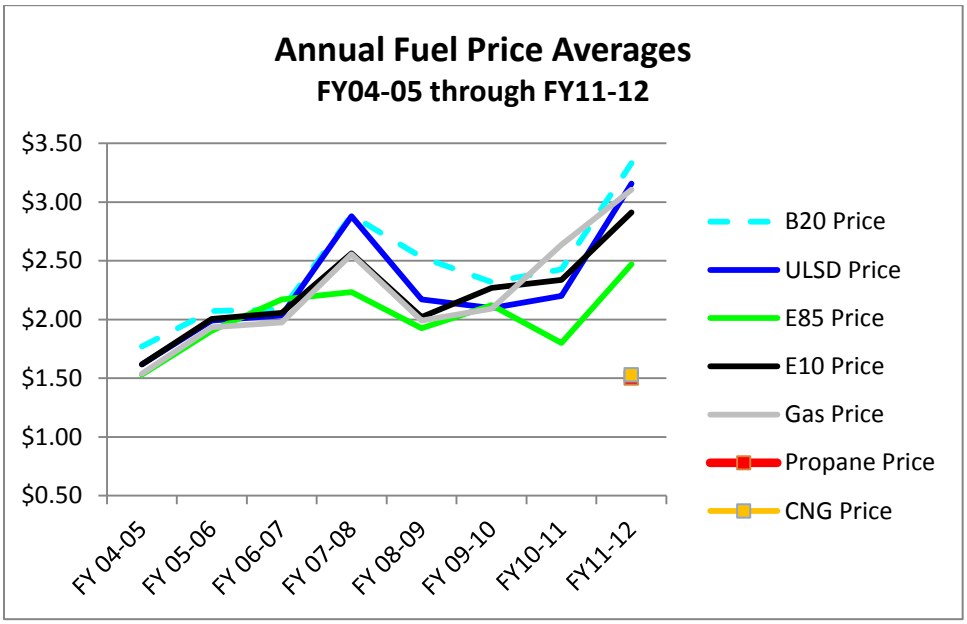

Figure 11. Fuel prices for B20, diesel, ethanol, gasoline and propane are based on transport loads prices listed in the State Contract – transport propane was added to the state contract in 2011. CNG price is based on the transportation fee structure set by PSNC Energy, as it is not currently offered on the state fuel contract. Averages for B20, Diesel and E10 prices in FY10-11 are based on incomplete data.

While there have been times when the disparity between the price of conventional fuel and its bio-blend alternatives has been wide, overall the average incremental price remains small, and in some cases can provide a significant savings to the state.

State Contract Fuel Price Averages, FY04-05 through FY11-12							
Fiscal Year	B20 Price	ULSD Price	B20 - ULSD Diff	E85 Price	E10 Price	E10 – E85 Diff	Propane – E10 Diff
04-05	$1.7690	$1.6165	$0.1525	$1.5300	$1.6185	$0.0752	N/A
05-06	$2.0726	$1.9909	$0.0818	$1.9041	$2.0036	$0.0707	N/A
06-07	$2.0821	$2.0344	$0.0477	$2.1713	$2.0563	$0.0809	N/A
07-08	$2.8876	$2.8785	$0.0091	$2.2323	$2.5624	$0.0064	N/A
08-09	$2.5307	$2.1716	$0.3591	$1.9260	$2.0218	$0.0302	N/A
09-10	$2.3181	$2.0980	$0.2201	$2.1206	$2.2679	$0.1764	N/A
10-11	$3.1037	$2.7840	$0.2525	$2.2800	$2.6314	-$0.025	N/A
11-12	$3.3316	$3.1558	$0.1746	$2.4695	$2.9113	$0.4418	-$1.41

Table 4. FY09-10 prices are based on state averages; the rest are based on Wake County prices. Some averages are based on incomplete data as indicated by gray-shaded cells.

[13] Cost 'at the pump' in North Carolina, quoted by a representative from PSNC. The GGE price offered by Piedmont Natural Gas is currently $2.02.

In FY11-12, E85 was $.44 less on average than E10, supporting a recommendation that the state consider expanding efforts to get state FFVs to utilize E85 whenever possible. Likewise, the Table above represents another opportunity for cost savings through a shift towards propane and compressed natural gas (CNG) where fueling infrastructure is available.

The Table below shows an estimate of the prospective cost savings from higher but still relatively modest use of CNG and propane in place of diesel and E10 respectively, using FY 11-12 fuel costs and volumes as an example. If a shift in vehicle composition were implemented to enable the replacement of 10% of the petroleum-based fuels used in FY 11-12 (186,000 gallons of diesel; 1,380,000 gallons of E10) with CNG and propane, a savings of over $2 million in fuel costs could have been realized in FY11-12 (based on the E10 and ULSD prices shown in the table above and the $1.53 per GGE quoted for CNG).

	FY11-12	FY11-12 with 10% E10 and diesel shift to Propane and CNG
Estimated Fuel Costs	$73 million	$70.8 million
		Difference (Savings): $2.3 million[14]

Table 5. Savings from shifting 10% of the reported E10 and diesel use in FY11-12 to propane and CNG.

The example in this table is for illustrative purposes only - before implementing any changes, more detailed and fleet-specific analyses must be performed to ensure that vehicle and fuel use changes are appropriate for their needs and responsibilities.

Though not included here, electric (and hybrid) vehicles purchased to replace on-road cars and trucks also represent a notable source of fuel and maintenance cost savings. Because mileage on neighborhood electric and low speed electric vehicles (NEVs) is not universally reported, only estimated cost savings can be generated. But based on the information available, NEVs reduced fleet fuel cost by approximately $40,000 in FY11-12[15]. There is much more room in the state fleet for additional electric vehicles to displace on-road cars and trucks, especially on campuses and with organizations that have set, residential routes. Furthermore, as more passenger size plug in electric vehicles enter the market place there are additional opportunities for significant petroleum displacement in the state fleet.

[14] Savings was calculated by shifting 10% of the reported E10 and diesel use to propane and CNG, applying the average prices in Table 4 and as quoted by PSNC for CNG to those new fuel use figures, and comparing the results to estimated costs associated actual reported fuel use using the same fuel prices in Table 4.

[15] Based on an average annual of 800 miles per NEV, the average of 18mpg in gasoline vehicle displaced by NEV.

Summary Results

In FY11-12 the 36 participating state fleets displaced petroleum through three primary methods: an increasing proportion of alternative fuels, increased fuel efficiency, and improved fuel conservation. Collectively, these petroleum displacement efforts account for a savings of nearly 5.2 million gallons of petroleum; a 19.92% displacement compared to FY04-05, the highest percentage of displacement since the start of vehicle and fuel use tracking.

The primary factors supporting petroleum displacement compared to FY10-11 were:

+ Fewer miles driven
+ Slight increase in proportion of alternative fuels
+ Slight increase in E85 use from 418,174 gallons to 418,597 gallons
+ Increase in the use of B100 and B5
+ Increase in fleet fuel efficiency

Factors working against petroleum displacement in FY11-12 compared to the previous year were:

– Increase in fleet size
– Decrease in the use of propane and B20

Recommendations

The following measures will help put downward pressure on petroleum use in North Carolina, reducing transportation-related emissions and in some cases supporting economic development.

Require low bio-fuel blends in state fuel contracts. A 2-5% biodiesel blend requirement in all diesel fuel offered on the state fuel contract should be considered. It is a known fact that up to 5% biodiesel (B5) can be sold as diesel with no labeling requirements.

Also, just 2% biodiesel (B2) enhances the lubricity of ultra-low sulfur diesel (ULSD), removing the necessity of lubricity additives currently required for ULSD. With E15 now EPA-approved for sale to consumers in model year 2001 and newer vehicles, any state and local barriers to including up to an E15 blend on the state fuel contract should be considered.

Improve the tracking of fuel purchases at commercial locations and enhance the monitoring of E85 refueling by state vehicles. This will help individual agencies achieve and maintain continued PDP success. B20 and E85 are on the state purchasing contract. It is also important for organizations owning and leasing FFVs to coordinate with each other and those operating E85 and B20 fueling stations to maximize use of those stations whenever possible. Some organizations may be able to make adjustments to vehicle assignment, for example, to take advantage of station proximity and favor the use of alternative fuels more often.

Expand use of E85 refueling to provide for the state's E85-capable flex-fuel vehicles (FFVs) while earning Energy Policy Act credits that are being sold and deposited in the Alternative Fuel Revolving Fund (AFRF). The number of FFVs within the reported fleet has grown 48.4% since FY 04-05. FFVs now make up 28 percent of the fleet, and while use of E85 has increased from almost 264,000 gallons in the baseline year to 418,597 for this report year, there is significant opportunity to expand use without costly or complex changes to fleet operations. Expanding state use will increase the number of credits available to trade through the Energy Policy Act Credit Banking and Trading Program. As of Sept 2012, the AFRF had total of $773,798 through credits sales that have been earned through E85 use. Two trades were made in FY11-12: So CA Edison purchased 200 credits for $180,000, and Entergy Electric Utility purchased 40 credits for $44,000.

Require departments to adopt a centralized/standardized system for tracking and reporting fuel use, vehicle count, and mileage. This recommendation precedes findings from the recent state fleet audit and resulting series of reports[16]. While some organizations already have systems in place that make it relatively easy for them to track and report these data points, others do not. This makes it difficult for these fleet managers to access the data they need, ensure that their information is accurate from year to year, track their own progress towards reaching their fleet PDP goal, and analyze and adopt the most appropriate petroleum-displacing fuels, practices and technologies for their needs. For some, the challenges to accessing complete fleet data are so severe that they have been consistently unable to report on whole portions of their fleet from year to year.

Revise MFM rules to allow for agencies to purchase passenger vehicles if they are hybrid electric, plug in electric, propane or natural gas vehicles. Currently MFM rules prohibit agencies from purchasing passenger vehicles. This rule has the effect of hindering efforts to increase the proportion of hybrids and alternative fuel vehicles with agencies that have discretionary funds to purchase their own passenger vehicles. Instead, less fuel efficient vehicles, such as pickup trucks, are purchased.

Expand support for and revise the PDP. There is no funding set aside for collecting and analyzing the PDP data, or facilitating inter-agency coordination or planning between annual reports. Funding for a full-time PDP position or a specific appropriation for PDP report coordination will result in better PDP tracking and implementation among state agencies. It will also enable a Fleet Best Practices program that can facilitate sharing of best practices and lessons learned among departments; development of a standardized method of accounting among agencies; interdepartmental coordination geared towards increased E85 use; cost-benefit analyses of various alternative fuel and advanced vehicle technology options (including hybrid electric, plug in electric, natural gas and propane vehicles); facilitation of E85 and B20 coding at retail service stations to enhance PDP data accuracy; and revision of the PDP to

[16] Inadequate Data and Fleet Information Management Weaken Accountability for North Carolina's Vehicles: Final Report to the Joint Legislative Program Evaluation Oversight Committee, Report Number 2011-07, December 14, 2011.

enhance tracking of conservation efforts, encourage innovations, and include currently exempt state vehicles such as school buses.

Cabinet and Executive Office support will reinforce the importance of the PDP. Establishing a state agency task force and incentive program to recognize exemplary efforts to expand use of alternative fuel, promote conservation and implement other advanced transportation technologies that reduce petroleum use and harmful emissions will support and encourage staff level efforts. The NC Alternative Fuel Consortium, previously hosted by the State Energy Office could be revived and expanded to serve this purpose.

Require eco-driving training for state fleet drivers. Significant savings can be achieved by establishing an on line or in person training for all state drivers to reinforce best driving practices that will save fuel and increase safety. A driver awards recognition for the greatest accomplishments and best improved is also recommended to reinforce the importance of “driving green to save green”.