University of North Carolina at Pembroke

One University Drive
Pembroke NC 28372

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Fleet Information

Total Leased Vehicles	18
Total County Titled Vehicles	0
Total State Titled Vehicles	24
Total Other Vehicles	0

Breakdown of State Titled Vehicles Only

Vehicle Type	Quantity	Miles
Gasoline Only	22	88,000
Diesel	2	1,800
Hybrids	0	-
Flex-fueled Vehicles	0	-
Comp Natural Gas	0	-
Propane	0	-
Electric	0	-
Other	0	-
10% Eligible	0	-
Totals	**24**	**89,800**

Fuel Information

State Titled Vehicles Only

Fuel Type	Gallons	Pet. Eqv.
Gasoline	9,500	9,500
E10	0	-
E85	0	-
Diesel	200	200
Off-road Diesel	100	100
B5	0	-
B20	0	-
B100	0	-
CNG	0	-
Propane	0	-
Other	0	-
	Quarts	
Petroleum Motor Oils	0	-
Syn & Rec Motor Oils	555	-
	Total	**9,800**

Fueling Infrastructure

Location	Age	Size	Fuel
UNCP	10	8000	Gas
UNCP	20+	5000	Diesel

Instructions

Fill out all information (exception - miles if N/A)
Complete with data from fiscal year 2004-2005
Please note if fuel includes more than State Vehicles
Count hybrids and FFV's only once in the breakdown,
do not count them as gasoline vehicles
10% Eligible vehicles include police & emergency
10% eligible educational vehicles must have
specific modifications for instructional purposes

Notes/Comments

Total Fuel includes synthetic motor oils

Potential for Biofuels Expansion

Location	Space	Tk Size	Fuel
UNCP	20+	5000	BioDsl

Potential Reduction in Petroleum use for your organization;

		Projected Reduction			
Conservation	Reduce speeds, efficient cars, task pooling	294	gallons	=	3.00%
E10	Using E10 for all gasoline vehicles	950	gallons	=	9.69%
E85	Using E85 for all flex-fueled vehicles	-	gallons	=	0.00%
B5	Using B5 for all diesel vehicles	15	gallons	=	0.15%
B20	Using B20 for all diesel vehicles	60	gallons	=	0.61%
B100	Using B100 in 1/10th of your diesel vehicles	30	gallons	=	0.31%
FFV	Substituting one FFV using E85	278	gallons	=	2.83%
CNG/Propane	Replacing one vehicle with a CNG/LPG car	408	gallons	=	4.17%
Electric	Replacing one vehicle with an electric car	408	gallons	=	4.17%
Syn & Rec Oils	Using all synthetic and recycled motor oils	-	quarts	=	0.00%

Petroleum Displacement
Goal : 20.0%
1,960 gallons

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Petroleum Displacement	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	Initial Cost	Yearly Cost
3%	Implement drive awareness towards driving within posted speed limits, use cruise control,					0	0
	use overdrive features, anticipate driving conditions, avoid poor driving conditions, avoid unnecessary						
	idling, combine errands and remove unnecessary and excess weight from vehicles.						
2%	Replace two FFV (Full size vans 1/2 ton) with Electric Utility Vehicle for campus use only					6000 (A)	900 (B)
	© See Note Below						
4%		Replace two FFV with Electric Utility Vehicle for campus use only				6000 (A)	900 (B)
2%		Replace two gasoline grounds vehicles with electric vehicles.				0	400 (d)
4%			Replace two FFV with Electric			6000 (A)	900 (B)
			Utility Vehicles for campus use only				
1%			Replace one gasoline grounds vehicle with an NEV			0	400 (d)
			80% of FO vehicles will be limited to campus use only except for emergencies only.				
			Parking all FO vehicles six days each month				
							1200
4%				Replace two FFV		6000 (A)	900 (B)
				with Electric Vehicles		0	400 (d)
1%				Replace one gasoline grounds vehicle with electric			
Totals	**6%**	**12%**	**17%**	**22%**			

Possible additional vehicle purchases from 2006 - 2010

Year	Quantity, Vehicle Type and Description	Purpose	Fuel / Hybrid		Additional Cost
2006/2007	Two Pickups (Off Road)	General Maint. Use	Electric		6000
	One Van	Housekeeping Maint.	Electric		3000
2007/2008	One Flat Bed Truck	General Maint. Use	LPG		3000
	Two Pickups (Off Road)	General Maint. Use	Electric		6000
2008/2009	Two Pickups (Off Road)	General Maint. Use	Electric		6000
	One 2 Ton Flat Bed Truck	Grounds Maintenance	LPG		3000
2009/2010	One 2 Ton Box Truck	General Maint. Use	LPG		3000
	One Van	Housekeeping Maint.	Electric		3000
	One Pickup (Off Road	General Maint. Use	Electric		3000
	One 1/2 Ton Pickup	General Maint. Use	Gasoline		0

(a) Our research shows that Electric Vehicles cost an estimated $3000 compared to gasoline vehicles.
(B) On average batteries need to be replace every two years at a $1400 cost and routine maintenance for tires etc. at $200 per year.
© **NOTE: Our campus is in a rural area and is compacted within an 140 acre site.**
As our existing fleet ages, I plan to make most replacements with electric vehicles.
What I have been looking at are vehicles furnished by Carolina Industrial Equipment
located in Charlotte, NC 1-800-474-2434. The vehicles I have tested are 72 Volt and can be seen
at www.tigertruck.com
(d) **Estimate $400 per year for batteries and routine maintenance.**

E; **Implemented 60/07**
In conjunction with our Biology Department we began the process of producing B-100 which is being currently used in
our campus street sweeper and diesel lawn mowers. Currently we are producing and using an estimated 250 gallons per month.

Note: 2009/2010 This process was discontinued by our Biology Dept. in July 2009 due to departmental budget cuts etc.

f. NOTE: During fiscal year 2010/2011 if required each vehicle on our list will be given a gas allotment to assist us in reaching and maintaining our goal.

University of North Carolina at Pembroke

Fleet and Fuel Reporting

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Fleet Information	2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011	
Vehicle Type	**Total #**	**Miles**	**Total #**	**Miles**	**Total #**	**Miles**	**Total #**	**Miles**	**Total #**	**Miles**	**Total #**	**Miles**
Gasoline	22	93,850	24	102,000	26	109,000	29	98,255	31	124,178	32	122,085
Diesel	2	1,500	2	1,800	3	6,850	6	8,765	6	7,480	5	5,979
Hybrid	-	-	-	-								
Flex-fueled Vehicles	-	-	-	-								
Comp Natural Gas	-	-	-	-								
Propane	-	-	-	-								
Electric	-	-	1	100	1	100	1	100	1	25	1	10
Emergency/Ed (10%)	-	-	-	-								
Totals	**24**	**95,350**	**27**	**103,900**	**30**	**115,950**	**36**	**107,120**	**38**	**131,683**	**38**	**128,074**
	0%	**6%**	**13%**	**16%**	**25%**	**29%**	**50%**	**19%**	**58%**	**47%**	**58%**	**43%**

Fuel Information	2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011	
Fuel Type	**Gal**	**Petr.**	**Gal**	**Petr.**	**Gal**	**Petr.**	**Gal**	**Petr.**	**Gal**	**Petr.**	**Gal**	**Petr.**
Gasoline	10,200	10,200	8,992	8,992	8,500	8,500	7,800	7,800	2,157	2,157	-	-
E10	-	-	-	-		-		-	6,472	5,825	8,171	7,354
E85	-	-	-	-		-		-		-		-
Diesel	200	200	300	300	375	375	398	398	330	330	271	271
B5	-	-	-	-		-		-		-		-
B20	-	-	-	-		-		-		-		-
B100	-	-	-	-				-		-		-
CNG	-	-	-	-		-		-		-		-
Propane	-	-	-	-		-		-		-		-
	Qrts		**Qrts**		**Qrts**		**Qrts**		**Qrts**		**Qrts**	
Petroleum Motor Oils	-	-	-	-		-		-		-		-
Syn & Rec Motor Oils	2,000	-	2,200	-	1,280	-	1,200	-	880	-	1,320	-
Total Petroleum Use		**10,400**		**9,292**		**8,875**		**8,198**		**8,312**		**7,625**
% Change in PDP		**6%**		**-5%**		**-9%**		**-16%**		**-15%**		**-22%**

PDP goal by 2011: -20.0%

ref line # 36 JO'N

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Results Noted (by FY 2009-10) as relate to your PLAN

Plan for FY 2011-12

all PDP participating fleets results to 2009-10

Overall Results from all participating fleets

	FY 2004-05	FY 2009-2010	
Fuel Type	thousand of gallons	thousand of gallons	% change
Gas	14,935	3,165	-79%
E10	598	11382	1803%
E85	242	398	64%
Diesel	8,526	1602	-81%
B5	-	7	
B20	1,870	8157	336%
B100	-	2	
Total Biodiesel as B20	1,870	8,167	337%
CNG	3	0	-92%
Propane	56	5	-91%
Petroleum Motor Oils	48	35	-27%
Syn & Rec Motor Oils	3	6	115%
Total Fuel	**26,283**	**24,760**	**-5.8%**
Total Petroleum	**25,581**	**21,638**	**-15.4%**
T.Fuel (adj. for growth)	**26,877**	**24,760**	**-7.88%**
T.Petro (adj for growth)	**26,153**	**21,638**	**-17.26%**

vehicles reported in PDP

	FY 2004-05	FY 2009-2010	
Vehicle Types	#	#	% change
Gasoline	10,816	9,436	-13%
Hybrid	78	129	65%
Flex-fueled Vehicles	4,752	7,018	48%
Comp Natural Gas	14	5	-64%
Diesel	4,498	5,066	13%
Propane	192	150	-22%
Emergency/Ed (10%)	6,007	5,871	-2%
Electric	13	199	1431%
Total	**26,370**	**27,874**	6%

Of the Overall 17.5 % petroleum reduction:

3.95% displaced by reduced mileage (conservation)
4.01% displaced through E10 use
0.49% displaced through E85 use
4.7% displaced through biodiesel use
4.3% displaced through efficiency

Your organization result to date

University of North Carolina at Pembroke results to date (2009-10)

% of Goal	State Organization	Petro Use	Petroleum Displacement Achievements	PDP Actions (Petroleum Reduction)
76%	UNC Pembroke	-15%	close to goal	focus on drastic conservation to meet goal, unable to add more NEV's (budget)

% Reductions Caused by PDP Actions (by FY 09-10 as reported)

Miles	E10	E85	B5	B20	B100	CNG	Prop	Syn Moil
46.6%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%

your organization plan to date

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Petroleum Displacement	2005 thru2007	2007-2008	2008-2009	2009-2010 (report progress)	2010-2011 (plan next year and forward)	beyond 2011
Actual	**-5%**	**-9%**	**-16%**	**-15%**	**-22%**	

46.6%	increased miles, has not contributed to PDP		The assigning of the majority of our vehicles to campus use only has been a factor.	
2.4%	synthetic motor oil use has helped PDP			If needed we paln to use a fuel allotment policy
Previously Noted			Parking of all physical plant vehicles for 6 days each month has also played a large role in conservation.	Updates of consumption by all vehicles will be c
3%	Implement drive awareness towards driving within posted speed limits, use cruise control,		NOTE: Two vans purchased by deparments on campus has hindered our progress. Combined they used over 800 galons of fuel this past fiscal year which prevented us from reaching our goal of 20% reductions. Had it not been for this we would have been in the 24% reduction range.	
	use overdrive features, anticipate driving conditions, avoid poor driving conditions, avoid unnecessary			We interacted with all campus departments that
	idling, combine errands and remove unnecessary and excess weight from vehicles.			
2%	Replace two FFV (Full size vans 1/2 ton) with Electric Utility Vehicle for campus use only			vehicles, keeping them aware of our PDP goals.
	© See Note Below			
PLAN				
4%		Replace two FFV with Electric Utility Vehicle for campus use only		
2%		Replace two gasoline grounds vehicles with electric vehicles.		
4%			Replace two FFV with Electric	
			Utility Vehicles for campus use only	
1%			Replace one gasoline grounds vehicle with an NEV	
			80% of FO vehicles will be limited to campus use only except for emergencies only.	
			Parking all FO vehicles six days each month	
4%				Replace two FFV with electric vehicles
1%				Replace one gasoline grounds vehicle with electric vehicle

	We plan to issue monthly gallon allotm
	We will conduct quaterly meetings
	with each driver to make them aware
	of consumption and encurage them
	to practise feasible conservation
	measures such as speed, unnecessay
	trave., use electric vehicles when larger
	are not needed and challenge each
	department to set goals to stay within
	assigened allotments for each quarter.

space for Plan notes

© **NOTE: Our campus is in a rural area and is compacted within an 140 acre site. As our existing fleet ages, I plan to make most replacements with electric vehicles.**
What I have been looking at are vehicles furnished by Carolina Industrial Equipment located in Charlotte, NC 1-800-474-2434. The vehicles I have tested are 72 Volt and can be seen at www.tigertruck.com

d: Note c above will still be reviewed and implemented at every oppurtunity during fy 2010/2011

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	08-'09	09-'10	10-'11
baseline efficiency factor	9.04	9.04	
efficiency factor	11.96	14.340	
change indicated	32.30%	58.63%	

Conservation and Efficiency

your fleet efficiency appears to have increased dramatically, nearly 60%

defining steps taken to reduce petroleum consumption

In the process of reporting PDP results we have been able to directly attribute petroleum use changes due to: mileage; alternative fuel use; number of vehicles; use of synthetic or recycled motor oil. Indirectly we have been attributing any other change to "change in efficiency", a positive change may be called "conservation". To better define what portion of PDP performance is due to "change in efficiency or conservation" Please answer the following:

Has your agency/ department/ organization initiated any steps, **not previously reported,** intended to improve fleet vehicle efficiency? Please place "X" as appropriate

	2009-'10	2010-'11
YES	X	
NO		X

what did you change? Place "X" in appropriate box(es)
examples: a mechanical change could include equipment changes to vehicles or fueling infrastructure to make them more efficient. New hybrid autos or new fuel card reader systems would be mechanical. Process change could be an accounting system change, vehicle reassignment, or a carpooling system. Behavior could be drivers improving fuel economy by driving more efficiently or drivers combining errands or carpooling to reduce mileage.

	mechanical	2009-'10		2010-'11	
		X			
		yes	no	yes	no
1a	changed vehicle types	X		X	
1b	use fuel management system	X		X	
1c	use on-board idle reduction mechanism				X
1d	other mechanical system change				

	process	2009-'10		2010-'11	
		X			
		yes	no	yes	no
2a	changed fuel accounting system	X			X
2b	reduced on-board weight			X	
2c	set carpooling policy	X		X	
2d	reassigned vehicles to reduce fuel use	X		X	
2e	check tire pressure routinely	X		X	
2f	evaluate MPG performance by vehicle	X		X	
2g	other process system change				

	behavior	2009-'10		2010-'11	
		X			
		yes	no	yes	no
3a	trained drivers on economical driving	X		X	
3b	reminded drivers to save fuel	X		X	
3c	set policy on idle reduction	X		X	
3d	evaluate driver behavior (on economy)	X		X	
3e	carefully observe speed limit	X		X	
3f	reward economical driving or punish inefficient driving	X		X	
3g	other behavior change				

when did you first change it? Place "question #" in box best marking when process began. There may be multiple marks.

	mechanical	
before 2005	1b, 1a	
FY 04-05		
FY 05-06		
FY 06-07		
FY 07-08		
FY 08-09		
FY 09-10		
FY 10-11		

	process	
before 2005	2a, 2e	
FY 04-05	2f	
FY 05-06		
FY 06-07	2d	
FY 07-08	2c	
FY 08-09		
FY 09-10		
FY 10-11		2b

	behavior	
before 2005	3a, 3b, 3e	
FY 04-05		
FY 05-06	3c, 3d	
FY 06-07		
FY 07-08	3f	
FY 08-09		
FY 09-10		
FY 10-11		

How did you change it? Please note question # you are referring to.

examples may include new procedures, training, or directives affecting vehicle choice or vehicle use; installation of new equipment to dispense fuel or account for its use.

mechanical

1a // We began purchasing electric carts for our physical plant departments in place of gasoline vehicles in the late 90's. 1b // A fuel management system was installed in 2002. (Gasboy System)

new in FY 2010-'11: A full size diesel pick-up truck was lost in an accident. It was replaced with a 4 cylinder gasoline Ranger pick up.

process

2a // A gas management system was purchased in 2002: 2c, d, f // Quaterly meetings are held to review fuel consumption of each vehicle, set policies, review driving records and review safety. 2e // All vehhicles are checked quaterly via our motor pool department for tire pressur

new in FY 2010-'11: Nothing new to report.

behavior

3a, b, c e,f // These items are reviewed and discussed in a quaterly attendance awards program for the whole department as part of our orverall safety program presentation. 3d // reviewed and covered in our quaterly motor pool meeting.

new in FY 2010-'11 Nonthie new to report.

From your Results Noted tab you are now aware of what portion of your PDP performance change (positive or negative) was attributed to efficiency and conservation last year.

Your '09-'10 PDP report indicated | 58.63% | was attributed to change in efficiency. Of the noted changes in each of these three categories what part will you attribute to current and future activities in each?
Your answers may total 0% if not applicable, otherwise the total will be 100%.

FY	2009-10	mechanical	10%
FY	2010-11	mechanical	5%
FY	2011-12	mechanical	

FY	2009-10	process	40%
FY	2010-11	process	40%
FY	2011-12	process	

FY	2009-10	behavior	50%
FY	2010-11	behavior	65%
FY	2011-12	behavior	