CLEAN UTAH PARTNER

Utah Department of Environmental Quality
www.deq.utah.gov/cleanutah
1-800-458-0145

Annual Report

For year ending: December 31, 2008

Utah Transit Authority

3600 South 700 West	Salt Lake City, UT	84119
Facility Street Address	*City*	*Zip*

Project Status

On a separate sheet, summarize:

- your Clean Utah project commitments and accomplishments made to date,
- major indicators of environmental improvements (measurable ways that you are determining the environment is improving as the result of steps you are taking),
- public participation activities you have undertaken, and
- your project plans for next year, as they relate to this program.

Certification Statement

(to be signed by the senior facility manager)

I certify that the information outlined in the attached annual report is correct and that this facility continues to meet all program criteria and has an active EMS, as defined by the Clean Utah! program. I further certify that this facility has conducted periodic assessments of compliance with legal requirements, has corrected all identified instances of noncompliance, and is currently in compliance with all applicable federal, state, and local environmental rules and regulations.

Signed

1-29-09
Date

Jerry Benson, Ph.D.
Print Name

Chief Operating Officer
Title

UTA

Environmental Improvement Project Results

Project #1: UTA Air Emission Reduction Project

Measurements:

1) Reduction of UTA's bus fleet NOx emission rate through the acquisition of 40 new buses in 2008 to replace older existing buses manufactured in 1997 and previous years.

Ground-level ozone is a main part of smog; and is formed by complex atmospheric chemical reactions between volatile organic compounds (VOC) and nitrogen oxides (NOx) in the presence of heat and sunlight. The emission standard is engine based and is in terms of the amount of pollutant per work performed. However, emission inventory calculations use vehicle miles traveled to characterize engine operation, which is grams per mile (g/mi). Therefore, a conversion factor (CF) reported in units of bhp-hr/mi is needed. For urban buses the conversion factor is 4.68 bhp-hr/mi. The following table illustrates the differing federal emission standards of NOx for engine exhaust from urban buses.

Federal Emission Standard for NOx		
Model Year	Grams per brake horsepower hour (g/bhp-hr)	Grams per Mile (g/mi)
1991 – 1997	5.0	21.5
1998 – 2001	4.0	17.2
2002 – 2006	2.2	9.5
2007 – 2009	1.2	5.2
2010 –	0.2	0.9

In 2007 UTA acquired 51 new buses as replacements for buses manufactured in 1992. This resulted in a reduction in the overall fleet NOx emission rate of 17.2 g/mi in 2006 to 15.5 g/mi in 2007. The goal set by UTA in 2008 was 14.25 g/mi for NOX emission rate through the acquisition of 40 new buses as replacements for older buses.

Due to an economic downturn and other market conditions, UTA was unable to acquire the 40 new bus replacements for 2008. However, in 2008 UTA was able to introduce a new bus rapid transit service called "MAX". This new service, a cross between light rail and bus service, connects the communities of Magna and West Valley to TRAX along the 3500 South corridor. With the addition of this new service UTA was able to reduce the NOx emission rate of its fleet by 3.8% to 14.95 g/mi. The distribution of buses and the applicable federal standard is shown in the following table for UTA's fleet.

	2007			2008		
Year	# of buses	g/mi	Fleet g/mi	# of buses	g/mi	Fleet g/mi
1992 – 1997	167	21.5	7.04	149	21.5	6.28
1998 – 2001	168	17.2	5.66	168	17.2	5.66
2002 – 2006	125	9.5	2.32	125	9.5	2.32
2007 -	51	5.2	0.52	69	5.2	0.70
Total	511		15.54	511		14.95

2) Reduction of total NOx emissions based on the vehicle miles traveled for all buses within a manufactured year.

By scheduling the more efficient buses on the longer routes in 2008, UTA set a goal of a 10% reduction for the total tons of NOx emitted.

	2007			2008		
Year	Miles	NOx g/mi	NOx tons	Miles	NOx g/mi	NOx tons
1992 – 1997	5,920,736	21.5	140	4,556,953	21.5	108
1998 – 2001	7,406,780	17.2	140	7,105,960	17.2	135
2002 – 2006	5,571,697	9.5	58	5,393,089	9.5	56
2007 - 2009	285,752	5.2	2	2,424,283	5.2	14
Total	19,184,965	16.1	340	19,480,285	14.6	313

Despite not being able to add a full complement of 40 new buses in 2008, UTA was able to reduce the NOx emission rate of its fleet by over 9.3% from 16.1 g/mi in 2007 to 14.6 g/mi in 2008 through the efficient management of its fleet.

Benefit to the environment for year:

Even with the added miles of the new rapid bus transit service, UTA was able to reduce its total NOx emissions by 8% in 2008 through the efficient management of its fleet.

Component	2007	2008
Oxides of Nitrogen	340 tons	313 tons

Benefit or savings for company:

The acquisition of new buses as replacements for older models reduces UTA's investment per rider because of the improved fuel efficiency. The addition of the new rapid bus transit service contributes to UTA's overall transit rider ship.

Project #2: Implement Energy Savings Program

Measurements:

1) Monitor and measure the total consumption of electricity at UTA transportation facilities.

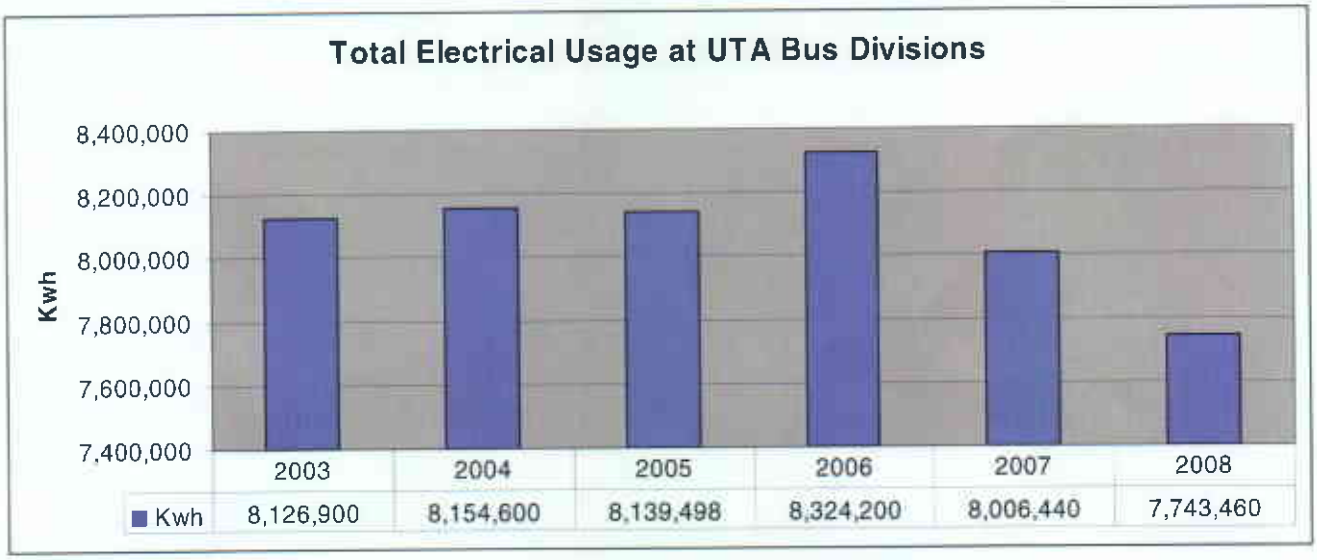
UTA identified Energy Management – Electrical Usage as one of its significant environmental aspects, using our Environmental Management System (EMS), ISO 14001. In 2006, UTA proposed a project with Clean Utah to decrease electrical energy usage by:

- Installing digital energy monitors in each building at the Meadowbrook campus;
- Improving lighting systems;
- Conduct energy audits; and
- Reduce electrical usage along the North-South TRAX Park N' Ride lots by 5%.

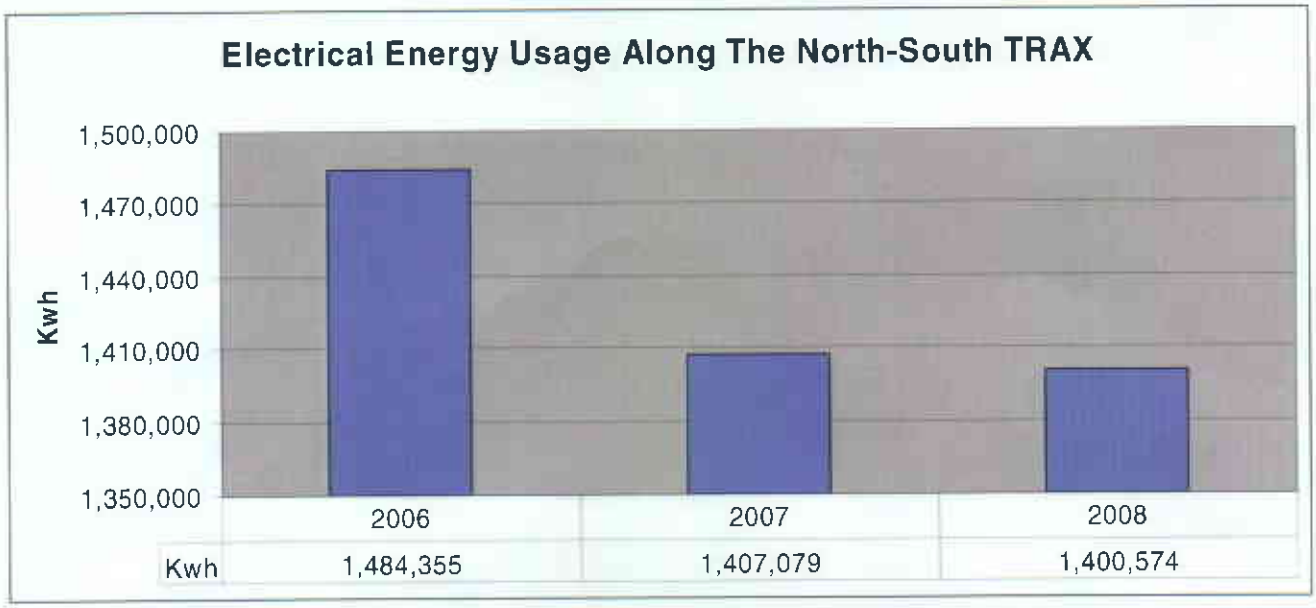
The use of digital energy monitors has enabled UTA to track savings from:

- Modification of air compressor operation in maintenance buildings to show an average savings of 338 kwh per day; and
- Modification of the run time for the make up air handlers that supply heat to fueling buildings for buses to save 200 – 300 kwh per day.

In addition to the use of energy monitors to identify areas where electrical energy can be conserved, UTA has installed improved energy efficient lighting at its transportation facilities. Since initiating this project with Clean Utah in 2006, UTA has reduced its electrical consumption by over 3% each year beginning in 2007. The following graph illustrates the reduction in electrical usage at UTA transportation facilities.



Along with the reduction of electrical usage at UTA's transportation facilities, we achieved over 5% reduction in electrical usage at the Park n' Ride lots along the North- South TRAX corridor in 2007 and sustained the energy conservation in 2008.



Benefit to the environment for year:

CO2 Emissions From Electrical Usage at UTA Bus Divisions		
Carbon Dioxide	Emission Rate[1]	Total Annual Emission
2006	1.341 lbs/kwh	5,581 tons
2007	1.341 lbs/kwh	5,368 tons
2008	1.341 lbs/kwh	5.192 tons

CO2 From Electrical Usage Along The North-South TRAX Park N' Ride Lots		
Carbon Dioxide	Emission Rate[1]	Total Annual Emission
2006	1.341 lbs/kwh	995 tons
2007	1.341 lbs/kwh	943 tons
2008	1.341 lbs/kwh	939 tons

1) "Carbon Dioxide Emissions from the Generation of Electric Power in the United States", United States Department of Energy and Environmental Protection Agency, July, 2000.

Benefit or savings for company:

The average cost per kilowatt-hour for 2006 and 2007 was $0.08.

Electrical Conservation: Combined Savings at UTA Bus Divisions'		
Year	$/kwh	Savings
2006	$0.08/kwh	
2007	$0.08/kwh	$25,420.80
2008	$0.08/kwh	$21,038.40

Electrical Conservation: Combined Savings at UTA TRAX Park N' Ride Lots		
Year	$/kwh	Savings
2006	$0.08/kwh	
2007	$0.08/kwh	$6,182.08
2008	$0.08/kwh	$6,702.48

In addition to reduced energy savings, UTA has received a total of $24,059.00 from Rocky Mountain Power for the energy efficient lighting installed at our Meadowbrook facility and at our TRAX Park and Ride lots along the North-South corridor.

Targeted Goals for 2009 (include specific measurement)

Project #1: UTA Air Emission Reduction Project

In 2008, UTA set a goal to reduce the NOx emissions from its bus fleet by 10% by acquiring new buses as replacements for older buses. Due to market conditions UTA was unable to purchase the necessary number of new buses to obtain that goal. However, despite this obstacle and through the implementation of the new bus rapid transit system, UTA was able to reduce its 2008 NOx emission rate by over 9.3% and total NOx emissions by 8% in 2008.

As a Partner Level Member of Clean Utah, UTA has developed a 6 year plan to acquire new buses as replacements for older buses to reduce Particulate Matter (PM) and Nitrogen Oxides (NOx) emissions with buses that meet today's more strict federal standards for PM and future 2010 standards for NOx.

Particulate Matter (PM)

The following table lists the federal emission standards for particulate matter (PM) from heavy-duty diesel engine exhaust in urban buses.

Federal PM Emission Standard			
Model Year	g/bhp-hr	CF bhp-hr/mi	g/mi
1991	0.25	4.68	1.17
1993	0.1	4.68	0.468
1994	0.07	4.68	0.3276
1996	0.05	4.68	0.234
2007	0.01	4.68	0.0468

UTA's fixed route and express route bus fleet travels approximately 20 million miles annually. Based on the annual miles and the age of UTA's fleet in 2007, the estimated PM emissions were 5.3 tons. By acquiring new buses that meet the 2007 Federal PM standards to replace older buses, UTA estimates that PM emissions by 2015 will be 1.0 ton. This will reduce PM emissions from UTA's bus fleet by over 80%.

Nitrogen Oxides (NOx)

For NOx emission calculations EPA sites an 8% compliance margin from manufacturers based on historical certification data. Therefore, for a NOx standard of 5.0 g/bhp-hr, a level of 4.6 g/bhp-hr is used as the emission level. The following table illustrates the differing emission standards of NOx for diesel engine exhaust from urban buses.

Federal NO_x Emission Standard			
Model Year	g/bhp-hr	CF bhp-hr/mi	g/mi (8% margin)
1991	5.0	4.68	21.53
1998	4.0	4.68	17.22
2002	2.2	4.68	9.47
2007	1.2	4.68	5.17
2010	0.2	4.68	0.86

Based on the annual miles and the age of UTA's fleet in 2007, the NOx emissions were 340 tons. By acquiring new buses that meet the 2010 Federal NOx standards to replace older buses, UTA estimates that NOx emissions by 2015 will be 69 tons. This will reduce NOx emissions from UTA's bus fleet by over 79%. For 2009 UTA has set a goal to replace all of its 1992 buses, which have the highest emissions of NOx and Particulate Matter.

As an expansion of last year's air emission reduction project, UTA will monitor and report on the following:

- The number of new buses and the manufactured year of the bus replaced.
- The vehicle miles traveled for all buses within a manufactured year.

Project #2: UTA Energy Conservation Project

UTA's objective is to decrease electrical energy usage in all areas possible. In 2006, UTA identified the reduction of electrical energy usage as a Clean Utah project. Through the use of digital energy monitors and the installation of energy efficient lighting UTA has been able to reduce electrical energy usage by 3% in each subsequent year of 2007 and 2008 at its transportation facilities. UTA will continue the implementation of the energy conservation project in 2009 and set a goal of an additional 3% reduction in electrical energy consumption. UTA will use the total kWh of electricity used by a facility as its target indicator.