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## Annual Report

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For year ending: December 31, 2009

### Utah Transit Authority

3600 South 700 West  
Facility Street Address

Salt Lake City, UT  
City

84119  
Zip

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## Project Status

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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.

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## Certification Statement

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*(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

Jerry Benson, Ph.D.  
Print Name

Feb. 4, 2010  
Date

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 and particulate matter (PM) emission rate through the acquisition of 47 new buses in 2009 to replace older existing buses manufactured in 1998 and previous years.

UTA has developed a 6 year plan, beginning in 2009, to acquire new buses as replacements for older buses that will reduce Particulate Matter (PM) and Nitrogen Oxides (NOx) emissions.

#### Particulate Matter (PM)

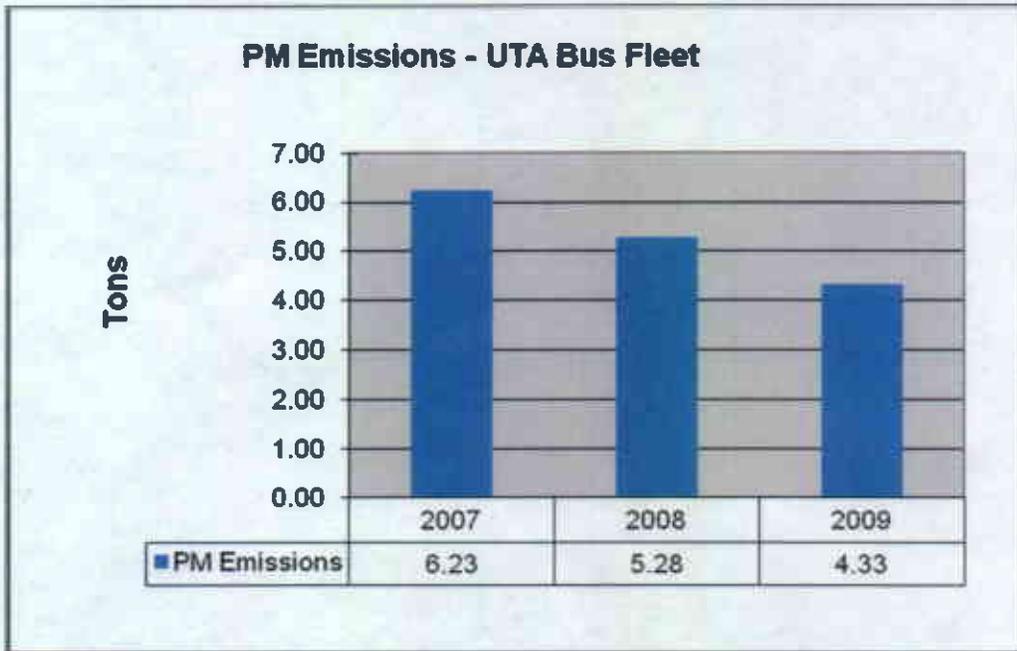
The following table lists the federal emission standards for particulate matter (PM) from heavy-duty diesel engine exhaust in urban buses.

Federal PM Emission Standard			
Model Year	g/bhp-hr	CF bhp-hr/mi	g/mi
1991 – 1992	0.25	4.68	1.17
1993	0.1	4.68	0.468
1994 – 1995	0.07	4.68	0.3276
1996 – 2006	0.05 <sub>(1)</sub>	4.68	0.234
2007 –	0.01	4.68	0.0468

UTA's fixed route and express route bus fleet travels over 19 million miles annually. By scheduling the more efficient buses on the longer routes, UTA has set a goal of a 10% reduction for the total pounds of PM emitted each year.

Year	2007		2008		2009	
	Miles	PM (lbs)	Miles	PM (lbs)	Miles	PM (lbs)
1991 – 1992	775,445	1,998	361,964	933	33,240	86
1993	843,389	869	455,088	469	123,310	127
1994 – 1995	3,178,949	2,294	2,638,914	1,904	2,265,748	1,635
1996 – 2006	14,101,430	7,268	13,600,036	7,010	12,275,829	6,327
2007 –	285,752	29	2,424,283	250	4,762,580	491
Total	19,184,965	12,459	19,480,285	10,566	19,460,707	8,666

Based on the annual miles and the age of UTA's fleet in 2007, the estimated PM emissions were 6.23 tons. By acquiring new buses that meet the 2007 Federal PM standards to replace older buses, PM emissions were reduced to 5.28 tons in 2008 and 4.33 tons in 2009. UTA reduced its PM emissions from 2007 to 2008 by more than 15%; and reduced its PM emissions from 2008 levels to 2009 levels by 18%, exceeding the goal of 10% reduction in PM emissions per year.



Nitrogen Oxides (NO<sub>x</sub>)

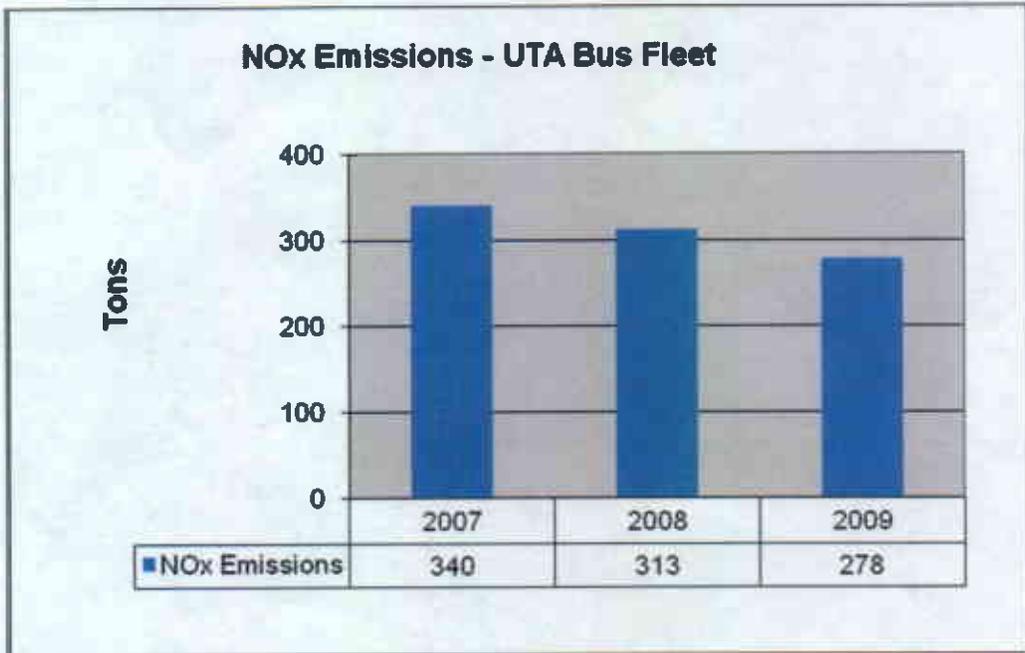
For NO<sub>x</sub> emission calculations EPA sites an 8% compliance margin from manufacturers based on historical certification data. Therefore, for a NO<sub>x</sub> standard of 5.0 g/bhp-hr, a level of 4.6 g/bhp-hr is used as the emission level. The following table illustrates the differing emission standards of NO<sub>x</sub> for diesel engine exhaust from urban buses.

Federal NO <sub>x</sub> Emission Standard			
Model Year	g/bhp-hr	CF bhp-hr/mi	g/mi (8% margin)
1991 – 1997	5.0	4.68	21.53
1998 – 2001	4.0	4.68	17.22
2002 – 2006	2.2	4.68	9.47
2007 – 2009	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 estimated NO<sub>x</sub> emissions were 340 tons. By acquiring new buses that meet the 2010 Federal NO<sub>x</sub> standards to replace older buses, UTA estimates that NO<sub>x</sub> emissions by 2015 will be 69 tons. This will reduce NO<sub>x</sub> emissions from UTA's bus fleet by over 79%.

Year	2007		2008		2009	
	Miles	NO <sub>x</sub> tons	Miles	NO <sub>x</sub> tons	Miles	NO <sub>x</sub> tons
1992 – 1997	5,920,736	140	4,556,953	108	3,342,027	79
1998 – 2001	7,406,780	140	7,105,960	135	6,276,872	119
2002 – 2006	5,571,697	58	5,393,089	56	5,079,228	53
2007 - 2009	285,752	2	2,424,283	14	4,762,580	27
<b>Total</b>	<b>19,184,965</b>	<b>340</b>	<b>19,480,285</b>	<b>313</b>	<b>19,460,707</b>	<b>278</b>

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



**Benefit to the environment for year:**

Component	2007	2008	2009
Particulate Matter	6.23 tons	5.28 tons	4.33 tons
Oxides of Nitrogen	340 tons	313 tons	278 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 of the newer buses. As part of UTA’s 6 year bus replacement plan, the addition of hybrid-electric buses as a portion of the upgrade will be included. Today’s technology of hybrid-electric buses is 20% more fuel efficient than their diesel bus counterparts.

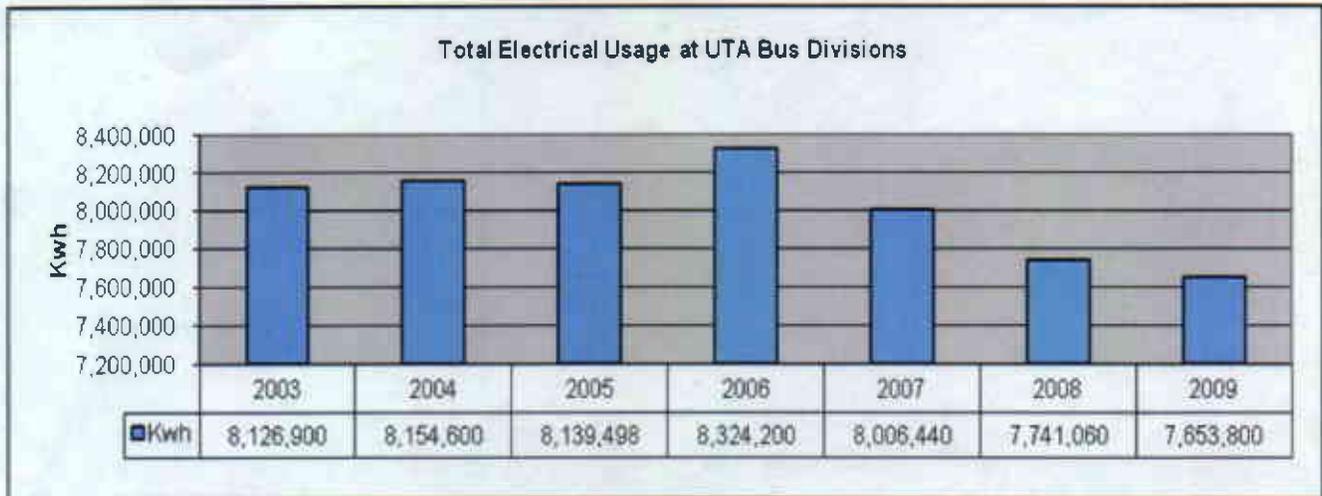
**Project #2: Implement Energy Savings Program**

**Measurements:**

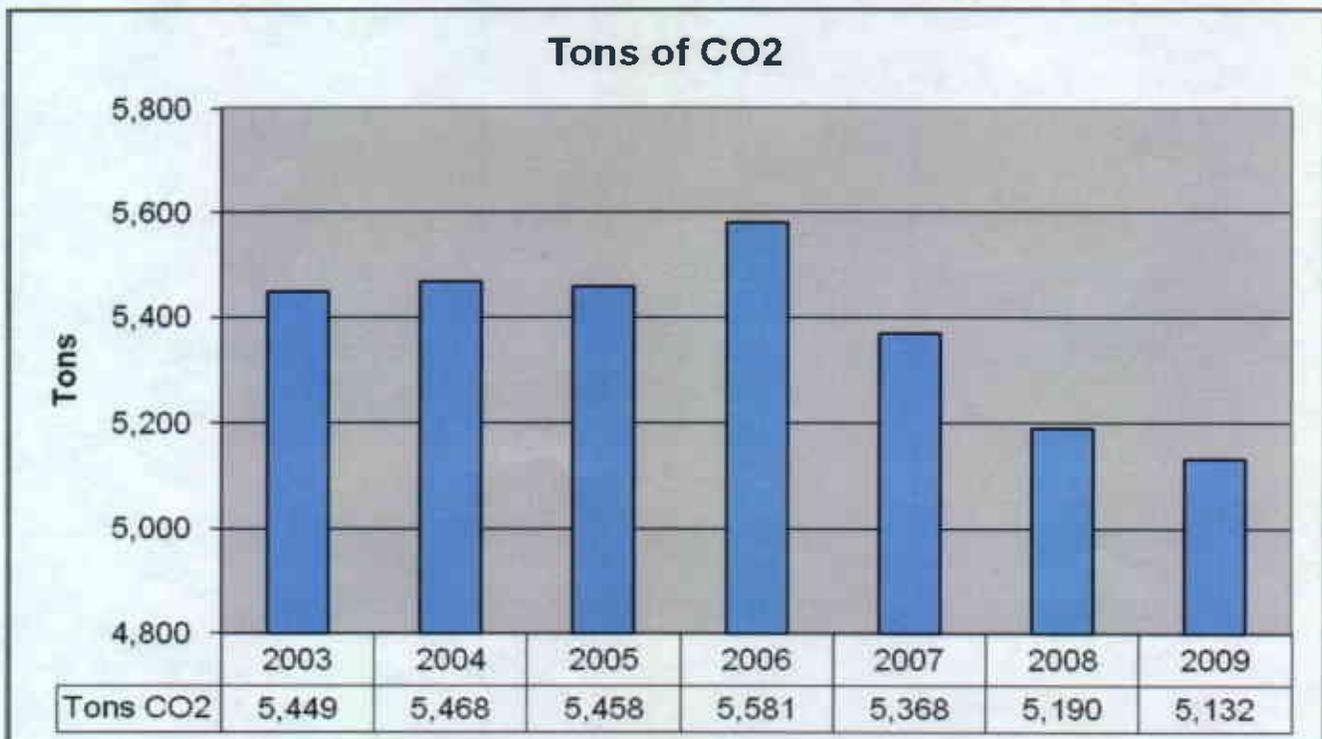
- 1) Monitor and measure the total consumption of electricity at UTA transportation facilities.

UTA identified Energy Management – Electrical Usage as one of its significant environmental aspects, using our Environmental Management System (EMS), ISO 14001. In 2006, UTA identified the reduction of electrical energy usage as a Clean Utah project. UTA has been able to reduce electrical energy usage by 3% in each subsequent year of 2007 and 2008 at its transportation facilities. For 2009 UTA set a goal of an additional 3% reduction in electrical energy consumption.

For 2009 UTA achieved a reduction in electrical usage of 1.13%. Despite not achieving the goal of an additional 3% reduction in electrical usage, UTA has demonstrated a sustained effort in energy conservation. The overall reduction from 2006, when the project began, through 2009 was an 8.05% reduction in electrical consumption. The following graph illustrates the reduction in electrical usage at UTA transportation facilities.



The UTA is a Founding member of The Climate Registry. Annually, UTA calculates its total GHG emissions, both direct and indirect, for all of our facilities. Emissions associated with electricity consumption are indirect. Reduction in CO2 emissions from electrical consumption from this project is illustrated in the graph below.



**Benefit to the environment for year:**

CO2 Emissions From Electrical Usage at UTA Bus Divisions		
Carbon Dioxide	Emission Rate <sup>1</sup>	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
2009	1.341 lbs/kwh	5,132 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 <sup>2</sup>		
Year	\$/kwh	Savings
2006	\$0.08/kwh	
2007	\$0.08/kwh	\$25,420.80
2008	\$0.08/kwh	\$21,038.40
2009	\$0.08/kwh	\$6,980.80

**Targeted Goals for 2009 (include specific measurement)**

**Project #1: UTA Air Emission Reduction Project**

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 for NOx.

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 6.23 tons and the estimated NOx emissions were 340 tons. By acquiring new buses that meet the 2007 Federal PM standards and the 2010 Federal NOx standards to replace older buses, UTA estimates that emissions by 2015 will be 1.0 ton for PM and 69 tons for NOx. This will reduce air pollutant emissions from UTA's bus fleet by 80%.

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 Water Conservation Project**

The Utah Transit Authority uses water to clean, drink, irrigate, dilute detergents and commodities to enable operations of our facilities, our fleets, park n' rides and employee related needs. As part of UTA's sustainability initiative, we have identified Water Management – Water Usage as a significant aspect using our Environmental Management System, ISO 14001.

Clean water is one of Utah's most valuable and limited resources. UTA is a significant stakeholder in the development and growth for communities along the Wasatch Regional Front. Through this project UTA will take an active role to conserve water consumption at our facilities, park n'rides and rail stations.

Objectives:

1. The UTA will establish a baseline measurement of water use by volume at our facilities, park n' rides and rail stations. To achieve this objective UTA will gather information from utility bills over a three year period, beginning in 2007.
2. Vehicle washing and grounds maintenance are significant sources of water usage by UTA. UTA will evaluate current vehicle washing infrastructure to ensure its integrity and efficiency for water recycling. UTA will evaluate grounds keeping maintenance to minimize water use and work with community stakeholders to implement "Xeriscaping" where allowed.
3. The UTA staff will set water usage savings goals while continuing to study other water uses in all of its operations support facilities. UTA will consider recommendations made by staff for improvements in these areas. Best management practices (BMPs) will be implemented to help achieve water reduction goals.
4. In 2010 the UTA will conduct a review of our Transit 2015 Plan to ensure that best management practices to conserve water are part of the design criteria for our new Rail facilities, park n'rides and stations.