

H. CARL McCALL
STATE COMPTROLLER



A. E. SMITH STATE OFFICE BUILDING
ALBANY, NEW YORK 12236

STATE OF NEW YORK
OFFICE OF THE STATE COMPTROLLER

January 25, 1999

Mr. Joseph H. Boardman
Commissioner
New York State Department of Transportation
State Office Campus, Building 5
Albany, NY 12232

Re: Report 98-F-33

Dear Mr. Boardman:

Pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law, we have reviewed the actions taken by officials of the New York State Department of Transportation (Department), as of June 1, 1998, regarding the questions raised in our report, *Staff Study: The Purchase and Use of Compressed Natural Gas Buses By Public Transit Systems* (Report 96-D-11). Our report, which was issued on October 11, 1996, addressed how public transit systems, under the Department's guidance, purchased and used buses powered by compressed natural gas (CNG).

Background

Public transit systems in New York State (State) are overseen by the Department, which provides the systems with financial aid and technical assistance. Most of the buses used by these transit systems are powered by petroleum-based diesel fuel, which produces emissions that are a significant source of air pollution. The New York Energy Plan, which was issued in 1994, recommends that State government accelerate the purchase and use of alternative fuel vehicles. To reduce emissions, and reduce America's dependence on imported petroleum, transit systems have begun to purchase buses powered by CNG. As of June 1, 1998, more than 7,000 buses, most of them powered by petroleum-based diesel fuel, were operated by public transit systems throughout the State. However, about 250 of the 7,000 were powered by CNG.

In our prior study, we identified four transit systems that planned to increase the number of CNG-powered vehicles in their fleets. During our current review, we found this trend to be continuing. The New York City Transit Authority (NYCTA), New York City Department of Transportation (NYCDOT), Long Island Bus (LI Bus), and Central New York Regional Transportation Authority (CNYRTA) report they have increased the number of buses in their

fleets using CNG. In fact, more than one-half of the LI Bus fleet are now powered by CNG, and officials plan to eventually convert the entire fleet of 300 buses to CNG. Although its 200-bus fleet currently consists of 31 CNG buses, CNYRTA also plans to convert the entire fleet to CNG. Meanwhile, NYCTA is waiting to receive 500 CNG buses and NYCDOT is waiting for 174.

Summary Conclusions

In our prior report, we reviewed the purchases of CNG-powered buses and determined that CNG buses have both advantages and disadvantages when they are compared with diesel buses. For example, although CNG buses emit fewer pollutants, it costs more to buy and operate them. We concluded that transit system operators, in conjunction with Department officials, should continue to assess the costs and benefits of CNG buses.

In our follow-up review, we found that the questions raised during our prior study still exist. CNG buses generally emit fewer pollutants than diesel buses, but at the same time require significant capital costs. The Department asserts that the new clean diesel buses emit significantly fewer pollutants than the old diesel buses and cost about \$65,000 less than the CNG buses. A question still exists about the cost-effectiveness of CNG technology. However, although the Department has not performed a cost-benefit analysis to determine whether CNG is a viable option, it has continued to help transit systems pursue alternative-fuel technology by taking an active role in securing capital funding.

Summary of Status of Questions Raised in Prior Report

Of the two questions raised in our prior report, Department officials have considered one and have partially considered the other.

Follow-up Observations

Question 1

Is the purchase of CNG buses by transit system operators a viable option based on the incremental environmental benefits of CNG technology and its relative cost?

Status - Partially Considered

Agency Action - In their response to our prior study, Department officials agreed that there is an incremental emissions benefit when CNG buses are used in place of diesel-fueled vehicles, but noted that the changeover also involves significant capital cost. As a result, they questioned the cost-effectiveness of the technology. Although, the Department agreed that a cost-benefit analysis would determine whether CNG buses are a viable option, it has not conducted such an analysis. Department officials maintain that there is also a question

about the availability of sufficient transit funding that would make it possible to exercise the CNG option on a regular basis.

In our prior study, we found that buses powered by either CNG or clean diesel fuel meet the emission standards promulgated by the Federal Clean Air Act. We compared the emissions from both types of vehicles to determine whether one produced fewer pollutants than the other, and found that the CNG buses generally emitted fewer pollutants. During this follow-up review, Department officials provided us with updated emissions information showing that the new clean-diesel buses emit significantly fewer pollutants than the old diesel-powered vehicles. CNG buses still emit fewer pollutants, except for carbon monoxide emissions, than the clean-diesel vehicles.

In our prior study, we compared the purchase costs of CNG and diesel buses. We found that CNG buses could cost anywhere from \$42,000 to \$65,000 more than diesel buses. During our current review, we found that CNG buses can cost up to \$64,000 more than the clean-diesel buses.

Auditors' Comments - The Department should prepare a cost-benefit analysis that will help transit systems determine whether they should purchase buses powered by CNG or those powered by diesel fuel.

Question 2

Is the Department doing everything it can to encourage and assist transit system operators to pursue alternative fuel technology consistent with the State's energy plan?

Status - Considered

Agency Action - The Department has helped transit systems purchase alternative-fueled buses by forming a consortium of transit systems that develops universal bid specifications for bus purchases. The bus-purchase process can take up to two years. This development of universal bid specifications has reduced that time factor by about six to nine months. The Department has also taken an active role in securing funding for alternative-fuel technology on both the Federal and State levels. The Department was involved in writing sections of the Transportation Equity Act for the 21st Century (TEA-21), which provides \$100 million annually to fund the purchase or lease of clean-fuel buses, including clean-diesel; to improve existing facilities so they can accommodate clean-fuel buses; and to retrofit existing vehicles to meet current emissions standards. It has also been involved in the creation of the Environmental Bond Issue, that provides \$10 million to transit systems in fiscal year 1998-99.

Major contributors to this report were Thomas A. Nowinski, Ed Durocher, and Linda Giovannone.

We would appreciate your written response to this report within 30 days, indicating any actions planned or taken to address the unresolved questions discussed in this report. We also thank Department of Transportation management and staff for the courtesies and cooperation extended to our staff during this review.

Very truly yours,

Frank J. Houston
Audit Director

cc: Robert L. King