

Status Report:

**LOW-EMISSION
VEHICLES
AND
ALTERNATIVE
FUEL USE**

*Report to the
76th Legislature*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

(Appendix 2 of 3 to the TNRCC's Biennial Report to the 76th Legislature)

SFR-49/98 December 1998



Barry R. McBee, Chairman
R. B. "Ralph" Marquez, Commissioner
John M. Baker, Commissioner

Jeffrey A. Saitas, Executive Director

Authorization for use or reproduction of any original material contained in this publication—that is, not obtained from other sources—is freely granted. The commission would appreciate acknowledgment.

Copies of this publication are available for public use through the Texas State Library, other state depository libraries, and the TNRCC Library, in compliance with state depository law. For more information on TNRCC publications call 512/239-0028 or visit our Web site at:

<http://www.tnrcc.state.tx.us/publications>

Published and distributed
by the
Texas Natural Resource Conservation Commission
PO Box 13087
Austin TX 78711-3087

The TNRCC is an equal opportunity/affirmative action employer. The agency does not allow discrimination on the basis of race, color, religion, national origin, sex, disability, age, sexual orientation or veteran status. In compliance with the Americans with Disabilities Act, this document may be requested in alternate formats by contacting the TNRCC at (512)239-0028, Fax 239-4488, or 1-800-RELAY-TX (TDD), or by writing P.O. Box 13087, Austin, TX 78711-3087.

Low-Emission Vehicles and Alternative Fuel Use

Report to the Office of the Governor
and the 76th Texas Legislature

Prepared by
Office of Air Quality
Air Quality Planning and Assessment Division
Mobile Source Section

Table of Contents

1. Glossary of Acronyms	v
2. Executive Summary	vii
3. Introduction	1
4. Discussion	5
4.1 TCF Program Implementation	5
4.2 How SB 681 Altered SB 200	7
4.3 The National Low-Emission Vehicle (NLEV) Program	10
4.4 Energy Policy Act (EPAAct)	12
5. Status of Affected Fleets	15
5.1 Private and Local Government Fleets	15
5.2 State Fleets	17
5.3 Transit Authority Fleets	18
5.4 School District Fleets	24
Appendix I—Legislative History	I-1
Appendix II—State Fleet Data	II-1
Appendix III—Availability of LEVs	III-1
Appendix IV—Emission Standards	IV-1
Appendix V—FCFF Program vs. TCF Program	V-1

List of Tables

Table 1. VOC Emissions with TCF and FCFF Programs	2
Table 2. VOC Reductions from Contingency Measures	3
Table 3. Comparison of Affected and Nonaffected Private Fleets	15
Table 4. Comparison of Affected and Nonaffected Local Government Fleets	16
Table 5. Impact of Exemptions on Affected Fleets	16
Table 6. Number of Public Refueling Sites	18
Table 7. Fleet Data Survey for Texas Transit Authorities	19
Table 8. How Grandfathering Changes Helped Transits to Comply	21

Page left blank.

1. Glossary of Acronyms

AFV	Alternatively fueled vehicle
BP	Beaumont–Port Arthur
CALEV	California Low–Emission Vehicle program
CMSA	Consolidated metropolitan statistical area
CNG	Compressed natural gas
CO	Carbon monoxide
DART	Dallas Area Rapid Transit
DFW	Dallas–Fort Worth
DOE	U.S. Department of Energy
EP	El Paso
EPAct	1992 Energy Policy Act
E85	Ethanol blend of 85 percent ethanol and 15 percent gasoline
FCAA	Federal Clean Air Act
FCFF	Federal Clean Fuel Fleet program
GSC	General Services Commission
GVWR	Gross vehicle weight rating
HB	House Bill
HC	Hydrocarbons
HCHO	Formaldehyde
HDV	Heavy-duty vehicle
HG	Houston-Galveston
HSC	Texas Health and Safety Code
ILEV	Inherently low-emission vehicle
LDT	Light-duty truck
LDV	Light-duty vehicle
LEV	Low-emission vehicle

LNG	Liquefied natural gas
LPG	Liquefied petroleum gas, commonly referred to as “propane”
M85	Methanol blend of 85 percent methanol and 15 percent gasoline
MERC	Mobile Emission Reduction Credit
MSA	Metropolitan statistical areas
MY	Model year
NAA	Nonattainment area
NLEV	National Low-Emission Vehicle program
NMHC	Nonmethane hydrocarbons
NMOG	Nonmethane organic gas
NO_x	Oxides of nitrogen
OTC	Ozone Transport Commission
PCC	Program Compliance Credit
SB	Senate Bill
SIP	State Implementation Plan
TACB	Texas Air Control Board
TAFF	Texas Alternative Fuel Fleet program
TCF	Texas Clean Fleet program
Tier 1	Current federal emission standard
TGC	Texas Government Code
TLEV	Transitional low-emission vehicle
TNRCC	Texas Natural Resource Conservation Commission
TTC	Texas Transportation Code
TxDOT	Texas Department of Transportation
ULEV	Ultralow-emission vehicle
VOC	Volatile organic compound
ZEV	Zero-emission vehicle

2. Executive Summary

The Texas Natural Resource Conservation Commission (TNRCC) is required by Section 382.141 of the Texas Health and Safety Code (HSC) to report biennially on the use of low-emission vehicles (LEVs) and alternative fuels in Texas. This report has been submitted to the governor and each member of the 76th Texas Legislature, and is available to the public as TNRCC publication number SFR-49/98.

Though the TNRCC is required to report on the use of LEVs and alternative fuels, it is only responsible for implementing the requirements of the HSC as amended by Senate Bill (SB) 681, Acts of the 75th Texas Legislature, 1997. Under these requirements the TNRCC is responsible for implementing the Texas Clean Fleet (TCF) LEV program, which currently affects:

- ◇ **private fleets** with more than 25 fleet vehicles operating in a metropolitan statistical area (MSA) with a population of 350,000 or more that is in a serious, severe, or extreme nonattainment area (NAA);
- ◇ **local government fleets** with more than 15 vehicles operating in a MSA with a population of 350,000 or more that is in a serious, severe, or extreme NAA; and
- ◇ **transit authority fleets** in serious, severe, or extreme NAAs.

The General Services Commission (GSC) is responsible for implementing the alternative fuel requirements for state fleets found in Chapter 2158 of the Texas Government Code (TGC), which currently affects:

- ◇ **state vehicle fleets** with more than 15 vehicles, statewide.

Under the Texas Transportation Code (TTC), certain transit authority fleets are responsible for implementing LEV usage requirements for their own fleets; these fleets include:

- ◇ **Transit authority fleets** established under Chapters 451–53 of the TTC, statewide.

Private Fleets and the TCF Program. As of October 1, 1998, 190 out of the initial estimate of 1,531 private fleets remained in the program after fleet size and vehicle exemptions were considered: 139 in the Houston-Galveston (HG) area; 14 in El Paso (EP); and 37 in the Dallas–Fort Worth (DFW) area, representing 28,989 fleet vehicles out of the initial estimate

of 108,799 vehicles. For more information on vehicle exemptions, see the definition of fleet vehicle in Section 4.2. See Section 5.1 and Tables 3 and 5 for more details on private fleets.

Local Government Fleets and the TCF Program. As of October 1, 1998, 65 out of the initial estimate of 101 local government fleets remained in the program after fleet size and vehicle exemptions were considered: 42 in the HG area; 2 in EP; and 21 in the DFW area, representing 11,158 fleet vehicles out of the initial estimate of 28,867 vehicles. See the definition of fleet vehicle in Section 4.2 for more information on vehicle exemptions. See Section 5.1 and Tables 4 and 5 for more detail on local government fleets.

The vehicle exemptions, which could not be fully calculated into the modeling for the State Implementation Plan (SIP), significantly eroded the fleet vehicle count. Therefore, the TCF program achieves less than the 0.001 VOC tons per day reduction that was originally estimated for the year 1998 (see Table 1). Because the TCF program is a substitute for the Federal Clean Fuel Fleet (FCFF) program, it is required to achieve emission reductions equivalent to those projected to be achieved from the federal program.

For the 1998 SIP submission, the U.S. Environmental Protection Agency (EPA) required changes in the criteria for comparison of the fleets affected by the TCF program. As a result of these changes, the TCF program could project a reduction of only 4.937 VOC tons per day, cumulative over 10 years, compared to 6.741 tons per day cumulative for the federal program. TNRCC has therefore included contingency measures in the SIP submission to make up for the shortfall in emission reductions. These contingency measures, affecting VOC transfer operations and fugitive emissions, are acceptable to EPA and can generate significantly more VOC reductions than those required for equivalency with the federal program (see Tables 1 and 2). Therefore, the additional loss in emission reductions resulting from the shortfall in affected vehicles will be easily covered by the SIP contingency measures.

Transit Authority Fleets. Transit authority fleets are required to have 50 percent of their “fleet vehicles” as certified LEVs. (For the definition of “fleet vehicle” see Section 4.2). As of September 1, 1998, all transit authority fleets achieved this percentage requirement, due, in part, to Section 382.131 of the HSC as amended by SB 681, which changed the definition of a fleet vehicle to exclude those over 26,000 lbs. gross vehicle weight rating (GVWR). As of December 1997, this exemption allowed the eight affected mass transits to remove 3,024 vehicles from their fleet vehicle count. Although these vehicles were excluded from the program, they were eligible to be grandfathered and could be used to meet compliance if they met the grandfathering requirements.

In addition, a second change allowed fleets to grandfather all eligible vehicles through September 1, 1999. Formerly, under Section 382.142 of the HSC as amended by SB 200, affected mass transits could not grandfather more than 30 percent of their fleet. With this cap removed, as of December 1997, the mass transits could grandfather, on average, 61 percent of their fleet. However, the actual percentage of grandfathered vehicles needed by mass transits to meet compliance was 32 percent.

Without the changes to the grandfathering provisions, most transits would not have achieved the 50-percent-of-fleet requirement without additional LEV purchases (see Table 8). For greater detail on how Section 382.133 of the HSC as amended by SB 681 changed the grandfathering provisions, see Section 4.2.

State Vehicle Fleets. State fleets are required to have 50 percent of their total fleet capable of operating on one of five specified fuels: electricity; liquefied petroleum gas (LPG); natural gas; ethanol or ethanol/gasoline blends of 85 percent or more ethanol (E85); or methanol or methanol/gasoline blends of 85 percent or more methanol (M85). However, these fleets are not required to have vehicles certified to the LEV standards. The GSC is authorized to grant waivers to state vehicle fleets from the specified fuel use percentages on the basis of excessive cost or the lack of fuel or equipment.

State fleets are required to report their alternative fuel use to the GSC. In cooperation with the GSC, the following information on state fleets has been compiled and included in this report.

As of the summer of 1998, 67 state agencies have a fleet of more than 15 vehicles. Nine of the 67 state agencies (13.4 percent) had 50 percent or more vehicles in their fleet capable of using one of the five specified fuels. Waivers granted by the GSC have allowed an additional 11 state agencies (16.4 percent) to be in compliance with the specified fuel use mandates. Therefore, 20 out of 67 agencies, 29.9 percent, are in compliance.

The 67 affected state agencies reported a combined total of 23,662 vehicles with 10,236 (43.3 percent) of their vehicles capable of operating on an alternative fuel. Of the 10,236 state vehicles capable of operating on alternative fuels, 88 percent were dual-fuel conversions. According to the GSC, 20 percent of fuel purchases for state vehicles during fiscal year 1997 were alternative fuels. Of this 20 percent, 94.86 percent was propane; 5.13 percent was CNG; and .01 percent were other alternative fuels.

3. Introduction

The drive for cleaner vehicles began with the Federal Clean Air Act (FCAA) Amendments of 1990, which required states to implement the Federal Clean Fuel Fleet (FCFF) program in nonattainment areas (NAAs) rated serious and above for ozone and carbon monoxide. States had the option to submit a substitute program, as long as that substitute achieved emission reductions equivalent to the federal program.

In 1994, Texas submitted a revised State Implementation Plan (SIP) to the Environmental Protection Agency (EPA), substituting the Texas Alternative Fuel Fleet (TAFF) program for the FCFF program. A detailed history of state legislation and rules affecting the use of alternative fuels and low-emission vehicles (LEVs) in Texas can be found in Appendix I.

1995 Program Revisions—Senate Bill (SB) 200

Since 1994 the Texas program has been revised twice by the Texas Legislature. In 1995 the Health and Safety Code (HSC) as amended by SB 200 redefined alternative fuel to mean any vehicle/fuel combination that is certified to the federal LEV standards. Before this, the state recognized five specified alternative fuels: electricity; liquefied petroleum gas (LPG); natural gas; ethanol or ethanol/gasoline blends of 85 percent or more ethanol (E85); or methanol or methanol/gasoline blends of 85 percent or more methanol (M85).

This modification changed the Texas program from a fuel-based program to an emissions-based program in the state's four NAAs. Certain transit authorities, local governments, and private fleets located in the state's NAAs were required to purchase specified percentages of LEV-certified vehicles. As long as these vehicles were certified to LEV standards, they were no longer required to operate on a specific fuel type. Subsequently, the TAFF program was renamed the Texas Clean Fleet (TCF) program.

1997 Revisions—SB 681

In 1997 the 75th Texas Legislature enacted SB 681, which legislated a number of changes to the HSC, including changes to the metropolitan areas affected. Under Section 382.132 of the HSC as amended by SB 681, TCF rules apply only to serious, severe, or extreme NAAs. As a result, the Dallas–Fort Worth (DFW) and Beaumont–Port Arthur (BP) areas were not required to implement the TCF program. In February 1998, however, EPA reclassified the DFW area to a serious ozone NAA. Therefore, fleets operating primarily in the DFW area are required to comply with the TCF program. For more information on how the HSC as amended by SB 681 altered the TCF program, see Section 4.2.

The TNRCC is required by law to adopt rules to implement the HSC as amended by SB 681. TNRCC adopted such rules on July 29, 1998, and they became final on August 24, 1998. As a result of the SB 681 changes to the HSC, and the unforeseen number of vehicles that can be exempted, the TCF program would not reduce enough emissions to make it equivalent to the federal program unless offsetting measures were taken (see Table 1) .

Table 1. VOC Emissions with TCF and FCFF Programs

(Estimated for the Houston-Galveston, Dallas-Fort Worth and El Paso areas)

Years	TCF Program		FCFF Program	
	Light-Duty Vehicles	Heavy-Duty Vehicles	Light-Duty Vehicles	Heavy-Duty Vehicles
	VOC Tons/day	VOC Tons/day	VOC Tons/day	VOC Tons/day
1998	0.001	0.000	0.011	0.005
1999	0.006	0.002	0.079	0.033
2000	0.054	0.014	0.227	0.072
2001	0.171	0.046	0.424	0.115
2002	0.308	0.080	0.580	0.162
2003	0.467	0.120	0.660	0.209
2004	0.585	0.165	0.686	0.257
2005	0.684	0.211	0.701	0.306
2006	0.722	0.258	0.717	0.357
2007	0.738	0.305	0.732	0.408
Accumulated Totals =	3.736	1.201	4.817	1.924
Total Combined Reduction in Tons/Day =	4.937		6.741	

The FCAA allows programs to use measures other than mobile source as offsets (or substitutions) as long as the offsets are not required by the FCAA, and the state does not take credit for those offsets in the SIP. Texas does not take credit for emission reductions from state controls on fugitive emissions and Volatile Organic Compound (VOC) transfer operations in the SIP, and these controls are not required by the FCAA.

Therefore, the SIP adopted by the TNRCC contains contingency measures to ensure equivalency. These contingency measures allow the Texas Natural Resource Conservation Commission (TNRCC) to count extra emission reductions obtained from state controls on fugitive emissions and VOC transfer operations towards any shortfall from the TCF program.

The FCFF program, if enacted in Texas, is estimated to reduce 6.741 tons per day (see Table 1) of cumulative VOC emissions from 1998 to 2007 in the three NAAs rated serious and above. For the 1998 SIP submission, the EPA required changes in the criteria for comparison of the fleets affected by the TCF program. As a result of the changes, the TCF program could

project a reduction of only 4.937 tons per day of cumulative VOC emissions (1.804 less) in the three NAAs during the same 10-year period. (Appendix V compares the FCFF and TCF programs under SB 200 and SB 681.)

As it turns out, these already low SIP estimates are overinflated. The emission reductions for the TCF program were modeled based on fleet information received from the Texas Department of Transportation (TxDOT) and Dwight’s fleet database. These numbers were the most accurate fleet count available at the time, and suggested 72,691 vehicles would be included in the TCF program in 1998.

Fleet registration for the TCF program began in September 1997. The vehicle exemptions, which could not be fully calculated into the modeling for the SIP submission, significantly eroded the fleet vehicle count (see Table 5). The TNRCC now has more accurate fleet data. Current data indicates there are only 40,147 vehicles subject to the TCF program in the three covered NAAs. This data indicates that the original emission reduction estimates were too high. Therefore, the TCF program achieves less than the 0.001 VOC tons per day reduction that was originally estimated for the year 1998.

The shortfall between the TCF program and the FCFF program (1.804 tons of VOCs per day) is being compensated for through contingency measures. Emission reductions achieved through the contingency measures are outlined in Table 2.

Table 2. VOC Reductions from Contingency Measures
(Estimated for Houston-Galveston, El Paso, and Dallas-Fort Worth)

Years	Houston-Galveston VOC Reductions		El Paso VOC Reductions		Dallas-Fort Worth VOC Reductions	
	Fugitive Emissions TPD*	Transfer Operations TPD	Fugitive Emissions TPD	Transfer Operations TPD	Fugitive Emissions TPD	Transfer Operations TPD
1998	46.03	3.36	1.13	0.77	0.07	2.17
1999	46.03	3.36	1.13	0.77	0.07	2.17
2000	46.03	3.36	1.13	0.77	0.07	2.17
2001	46.03	3.36	1.13	0.77	0.07	2.17
2002	46.03	3.36	1.13	0.77	0.07	2.17
2003	46.03	3.36	1.13	0.77	0.07	2.17
2004	46.03	3.36	1.13	0.77	0.07	2.17
2005	46.03	3.36	1.13	0.77	0.07	2.17
2006	46.03	3.36	1.13	0.77	0.07	2.17
2007	46.03	3.36	1.13	0.77	0.07	2.17
Accumulated Totals =	460.30	33.60	11.30	7.70	0.70	21.70
Total Combined Reduction in Tons per Day	493.90		19.00		22.40	

*TPD: tons per day.

While the TCF program reduces 4.937 tons per day of cumulative VOC emissions from 1998 to 2007 for all three NAAs, the contingency measures achieve 535.3 tons per day of cumulative VOC emission reductions for the same areas during the same time period.

4. Discussion

4.1 TCF Program Implementation

Fleet Registration

In July 1997, the TNRCC mailed registration packets to fleets potentially affected by the TCF program in the HG and EP NAAs. Fleet operators subject to the program were required to register their fleets with the TNRCC by September 1, 1997. Affected fleets identified after September 1, 1997, are required to register with the TNRCC within 90 days of exceeding the minimum fleet size.

The DFW area was not affected by the TCF program until it was reclassified as a serious NAA in February 1998. Therefore, potentially affected fleets in the DFW area were notified after the reclassification became final.

Fleet Reporting

In July 1998, the TNRCC mailed the draft guidance document to local government and private fleet operators in the DFW, HG, and EP areas to help them comply with the biennial reporting deadline. The first fleet report was due by September 1, 1998, and biennially thereafter.

Local Government and Private Fleet Compliance

Local government and private fleets subject to Section 382.134 of the HSC as amended by SB 681 must acquire fleet vehicles certified by EPA to meet or exceed the LEV standards in accordance with the following compliance schedule:

1. 10 percent of their fleet vehicles (either LEVs or grandfathered vehicles) in their total fleet as of September 1, 1998, or

30 percent of their new fleet vehicle purchases between September 1, 1998, and September 1, 2000;
2. 50 percent of their new fleet vehicle purchases between September 1, 2000, and September 1, 2002; and
3. 70 percent of their new light-duty fleet vehicle purchases and 50 percent of their new heavy-duty fleet vehicle purchases after September 1, 2002.

These purchase requirements do not apply to subject local government and private fleets that maintain a proportion of 70 percent or more LEVs in their total fleet.

It is important to emphasize that affected local government and private fleets had to be in compliance by September 1, 1998, by either (a) demonstrating that 10 percent of their fleet vehicles were LEV-certified or “grandfathered” AFVs; or (b) committing to demonstrate by September 1, 2000, that 30 percent of their new fleet vehicle purchases between September 1, 1998, and September 1, 2000, will be LEV-certified. (Fleets that choose this option are not allowed to grandfather AFVs).

Of the affected private and local government fleets, 5.8 percent chose option “a,” using a total of one LEV-certified vehicle and 147 “grandfathered” AFVs to meet the 10 percent-of-fleet requirement. The next compliance deadline for these fleets will be September 1, 2002. The remaining 94.2 percent of the affected private and local government fleets chose option “b.”

Transit Fleet Compliance

Transit authority fleets operating vehicles in the DFW, HG, and EP NAAs are covered by Section 382.133 of the HSC, and are therefore under the enforcement authority of the TNRCC. These fleets are required to have 50 percent of their fleet vehicles LEV-certified.

Chapters 451–53 of the TTC as amended by SB 200 contain provisions covering all transit authorities statewide established under these chapters. These transit fleets are also required to have 50 percent of their fleet vehicles LEV-certified. In addition, these transits must not purchase or lease a motor vehicle, excluding any law enforcement and any emergency vehicle, that is not a LEV. However, the TNRCC has no authority over transit fleets outside of the NAAs other than the exception authority over Capital Metro in Austin granted to the TNRCC in Section 451.302 of the TTC. TNRCC is required by Section 382.141 of the HSC to report the status of these fleets to the Texas Legislature. Detailed compliance information on specific transit authorities can be found in Section 5.3, Transit Authority Fleets.

State Fleet Compliance

Under Section 2158.005 of the Texas Government Code (TGC) as amended by SB 200, state agencies, state colleges, state schools, and state hospitals with more than 15 vehicles

- ◇ *are required* to have 50 percent of their total fleet capable of operating on one of the five specified fuels—electricity, LPG, natural gas, 85 percent or more ethanol (E85), or 85 percent or more methanol (M85); but
- ◇ these state fleets *are not required* to have vehicles certified to the LEV standards.

While the TNRCC has no enforcement authority over state fleets, Section 2158.005 of the TGC requires the GSC to support the TNRCC in collecting information to report the status of these fleets to the Texas

Legislature. Details on alternative fuel usage by specific state agencies can be found in Section 5.2, State Fleets, and in Appendix II.

4.2 How SB 681 Altered SB 200

SB 681 made substantial revisions to the HSC and TTC, including changes to the metropolitan areas affected, the fleet vehicles covered, the percent-of-purchase requirements, percent-of-fleet requirements, grandfathering regulations, and exceptions. This section sets out the main differences in each of those areas.

Metropolitan Areas Affected

Section 382.132 of the HSC as amended by SB 681 redefined the metropolitan areas affected by TNRCC rules under Sections 382.133–36 of the HSC. Under the new language, TCF rules apply only to serious, severe, or extreme NAAs with a population of 350,000 or more. As a result, the DFW and BP NAAs were not required to implement the TCF program. In February 1998, however, DFW was reclassified as a serious ozone NAA. Therefore, fleets operating primarily in the DFW area are now required to comply with the TCF program.

Definition of Fleet Vehicle

Section 382.131 (7) of the HSC as amended by SB 681 changed the definition of fleet vehicle to the following:

“Fleet vehicle” means a vehicle required to be registered under Chapter 502, Transportation Code, except a motor bus used to transport pre-primary, primary, or secondary students to or from school or for approved extracurricular activities or a vehicle registered under Section 502.006(c), Transportation Code, and that is centrally fueled, capable of being centrally fueled, or fueled at facilities serving both business customers and the general public. The term does not include:

- (A) a vehicle that, when not in use, is normally parked at the residence of the individual who normally operates it; [These vehicles were already excluded previously under Section 382.131 of the HSC as amended by SB 200.]
- (B) a vehicle that has a GVWR of greater than 26,000 lbs.; [This change to the definition affected only mass transit fleets, as these vehicles were already excluded from private and local government fleets by the TAFF program as developed using the original 1989 SB 740 and SB 769 as a guide. Transit authorities had been required to include vehicles over 26,000 lbs. GVWR in Section 382.131 of the HSC as amended by SB 200.]
- (C) a vehicle used in the maintenance or repair of underground mass transit facilities which is required by federal law or regulation to operate on diesel fuel; [This was a change for all fleets.] or
- (D) a law enforcement or emergency vehicle. [In Section 382.134 of the HSC under SB 200 these vehicles had been exempted for local

government fleets, while private fleets were only able to exempt emergency vehicles.]

This new definition of fleet vehicle in Section 382.131 (7) of the HSC as amended by SB 681 changed the definition of fleet vehicle to exclude school buses from the requirements of the TCF program. Previously, TNRCC had excluded school buses from the program by rule, to adhere to the intent of SB 1, Acts of the 74th Legislature.

Percent-of-Purchase Requirements

Private and Local Government Fleets. Section 382.134 of the HSC as amended by SB 681 requires local government and private fleets to have a gradually increasing percentage of LEVs among their total fleet purchases, according to the schedule given in Section 4.1 under the heading “Local Government and Private Fleet Compliance.”

These percent-of-purchase requirements are less stringent than they had previously been under Section 382.134 of the HSC as amended by SB 200. Under SB 200, the percent-of-purchase requirements had been 90 percent of new light- and heavy-duty vehicles after September 1, 2002.

Once a fleet reaches 70 percent, and maintains it, Section 382.134 of the HSC as amended by SB 681 stipulates that it cannot be required to purchase more vehicles. Under SB 200, this maximum had previously been set at 90 percent.

Mass Transit Fleets. Under Chapters 451–53 of the TTC as amended by SB 681, 100 percent of mass transit vehicle purchases are required to be LEVs. Law enforcement and emergency vehicles are excluded under Chapters 451–53 of the TTC as amended by SB 681 from this 100 percent LEV purchase requirement. Previously, Section 382.133 of the HSC as amended by SB 200 did not exempt law enforcement and emergency vehicles from mass transit fleet requirements.

Percent-of-Fleet Requirements

Section 382.134 of the HSC as amended by SB 681 removed the percent-of-total-fleet requirements so that local government and private fleets only have to meet the percent-of-purchase requirements mentioned earlier. Formerly, affected fleets had to ensure that 20 percent of their total fleet vehicles were LEVs by September 1, 2000, and 45 percent of their total fleet vehicles were LEVs by September 1, 2002.

Grandfathering Provisions

SB 681 made many changes to the HSC’s grandfathering provisions for mass transit, private, and local government fleets.

Mass Transit Fleets. Under Section 382.133 of the HSC as amended by SB 681, vehicle acquisitions or conversions by transit fleets before September 1, 1999, may be used toward fleet percentage requirements if these vehicles are capable of operating on a fuel required by any state fuel or fleet program before September 1, 1995. This is known as grandfathering. If the vehicles are under 8,500 lbs. GVWR, they must meet the federal Tier 1 emissions standards to be eligible for grandfathering. Vehicles over 8,500 lbs. GVWR must meet the federal emissions standards in place at the time of manufacture.

Sections 382.131 and 382.133 of the HSC as amended by SB 681 made it easier for mass transits to meet program requirements through three changes:

- ◇ the exemption of vehicles over 26,000 lbs. GVWR;
- ◇ the elimination of the 30-percent-of-fleet cap on grandfathering; and
- ◇ the extension of the grandfathering deadline to September 1, 1999.

As mentioned, Section 382.131 of the HSC as amended by SB 681 changed the definition of a fleet vehicle to exclude vehicles over 26,000 lbs. GVWR. As of December 1997, this exemption allowed the eight affected mass transits to remove 3,024 vehicles from their fleet vehicle count. Although these vehicles were excluded from the program, they were eligible to be grandfathered and could be used to meet compliance if they met the grandfathering requirements.

The second change allows fleets to grandfather all eligible vehicles. Formerly, under Section 382.142 of the HSC as amended by SB 200, affected mass transits could not grandfather more than 30 percent of their fleet. With this cap removed, as of December 1997, the mass transits were capable of grandfathering, on average, 61 percent of their fleet.

The third change allows mass transits to grandfather eligible vehicles up to September 1, 1999 (one year later than allowed in Section 382.142 of the HSC as amended by SB 200). The extension of the grandfathering deadline to September 1, 1999, ensures that transit fleets will have the option of purchasing, through that date, AFVs that do not necessarily meet LEV standards.

As a result of these grandfathering regulation changes, all transit fleets are in compliance with the 50-percent-of-fleet LEV requirements (see Table 7). Without the changes to the grandfathering provisions, most transits would not have achieved the 50-percent-of-fleet requirements without additional LEV purchases (see Table 8).

Private and Local Government Fleets. Under Section 382.142 (e) of the HSC as amended by SB 681, private and local government fleets can only grandfather vehicles converted or acquired before September 1, 1995 (formerly 1998) if these vehicles are capable of operating on one of the five specified fuels.

Although Section 382.133 of the HSC as amended by SB 681 gave mass transit fleets an additional year to grandfather vehicles, Section 382.142 as amended took away three years from the grandfathering provisions for private and local government fleets. Like mass transits, private and local government fleets are able to take advantage of the elimination of the 30-percent-of-fleet grandfathering cap. Unlike the mass transits, however, private and local government fleets have always been allowed to exclude vehicles greater than 26,000 lbs. GVWR.

Exceptions

Section 382.136 of the HSC as amended by SB 681 added one new exception to the TCF program. TNRCC may grant exceptions to the LEV purchase requirements for any of the following reasons:

- ◇ a firm is engaged in a fixed-price contract with a public works agency where compliance with the LEV requirements would result in an economic hardship for the firm;
- ◇ adequate fueling required for the operation of LEVs is unavailable;
- ◇ financing for the increased cost of operation of LEVs is unavailable from fuel suppliers;
- ◇ the lifetime costs of LEVs is greater than the comparable costs of conventional vehicles; or
- ◇ original equipment vehicles, or vehicle conversions, that meet the normal business needs of the subject fleet are not available as LEVs. (This is the exception added by SB 681.)

4.3 The National Low-Emission Vehicle (NLEV) Program

In December 1997, EPA completed the regulations for the NLEV program. The majority of the Ozone Transport Commission (OTC) states and all the major automobile manufacturers agreed to participate in the program. Once these states and the automakers agreed to participate, EPA initiated the program and made it legally enforceable for all parties. It became effective in March 1998.

Under NLEV, auto manufacturers agreed to voluntarily produce cars and trucks that would meet tougher emission standards than EPA could legally mandate (see Appendix IV for information on emission standards). At the same time, EPA and the OTC states also agreed to certain conditions,

including providing manufacturers with regulatory stability and reducing certain regulatory burdens by harmonizing the federal LEV standards with the LEV standards for the California Low-Emissions Vehicle (CALEV) program.

As a result of NLEV, auto manufacturers will begin mass-producing LEVs over the next two years. These vehicles will emit less ozone-forming pollutants, particulates, benzene (a known carcinogen), formaldehyde (HCHO) and other pollutants. These vehicles meet the same standards as those that are required to be purchased by fleets in certain percentages under Sections 382.133–34 of the HSC. Therefore, the implementation of the NLEV program should simplify compliance with these sections of the HSC (the TCF program).

Starting September 1998 —model year (MY) 1999— the NLEV program requires automobile manufacturers to ensure that (on average) new cars and trucks less than 6,500 lbs. GVWR meet the LEV standards in the following nine OTC states:

- ◇ Connecticut, Delaware, District of Columbia, Maryland, New Hampshire, New Jersey, Pennsylvania, Rhode Island, and Virginia.

Five OTC states will continue with the more stringent CALEV program:

- ◇ California, New York, Massachusetts, Vermont, and Maine.

By September 2000 (MY 2001) the NLEV program will require automobile manufacturers to ensure that (on average) their new cars and trucks less than 6,500 lbs. GVWR will meet the LEV standards in the remaining states (including Texas). Although not required until September 2000, some LEVs are already available for purchase in the Texas market (see Appendix III).

The LEV standards for the NLEV program do not become more stringent over time as the emission standards do under CALEV. Nonetheless, EPA estimates that the overall effect of the two programs will be similar because NLEV will reduce vehicle emissions in 45 states, instead of just the 5 states that have already adopted CALEV.

The EPA has another opportunity to tighten vehicle emission standards. By January 1, 2001, EPA is statutorily required to announce whether it will issue new Tier 2 standards for motor vehicles. It can make these standards effective for vehicles as late as MY 2006. If EPA issues Tier 2 standards, NLEV continues until the standards become effective. If EPA does not issue Tier 2 standards by MY 2003, the NLEV requirements end with this model year.

4.4 Energy Policy Act (EPAct)

EPAct and Texas Law

By the time the Energy Policy Act of 1992 went into final effect, in March 1996, potential overlaps between it and Chapter 2158 of the TGC had started coming into focus. The U.S. Department of Energy (DOE) on February 28, 1995, proposed rules requiring alternative fuel usage by state government fleets and alternative fuel providers as mandated by the 1992 Energy Policy Act (EPAct). Certain Texas *state fleets* will need to comply with the alternative fuel usage requirements of both EPAct and Chapter 2158 of the TGC. However, since Chapter 2158 of the TGC is broader in scope than EPAct, the federal act puts no additional burdens on state fleets.

There is a potential for greater conflict if DOE adds rules about *private fleets, local government fleets, and other fleets not currently affected* by EPAct. If the rules currently being considered are adopted, EPAct might require private and local government fleets to acquire vehicles that operate on alternative fuels according to the following schedule:

- ◇ 20 percent in MY 2002,
- ◇ 40 percent in MY 2003,
- ◇ 60 percent in MY 2004, and
- ◇ 70 percent in MY 2005 and thereafter.

In Texas, therefore, there is the potential for private and local government fleets to have percent-of-fleet purchase requirements under both EPAct and Section 382.134 of the HSC (the TCF program). The differing requirements may present difficulties for private and local government fleets. EPAct requires the acquisition of AFVs, while Section 382.134 of the HSC requires LEVs. The affected fleets would therefore have to purchase LEVs that use an alternative fuel recognized by both EPAct and Chapter 2158 of the TGC to comply with both the federal and state regulations.

Essential Elements of EPAct

EPAct was enacted to stimulate the development of technologies that can shift national energy demand toward renewable or domestically produced energy sources. EPAct requires DOE to establish a program that promotes the replacement of petroleum-based motor fuels to the maximum extent possible. The following list highlights essential elements of the rule.

- ◇ The EPAct rule covers:
 - fleets of 20 or more vehicles operated primarily in MSAs and consolidated metropolitan statistical areas (CMSAs) with 1980 populations of 250,000 or more that are operated by state governments; and

— alternative fuel providers that control 50 or more vehicles within the United States.

In Texas, the following MSAs and CMSAs are affected: Austin-San Marcos, BP, Corpus Christi, DFW, EP, HG, McAllen-Edinburg-Mission, and San Antonio. However, all Texas state fleets with more than 15 vehicles are already required by Section 2158.005 of the TGC to purchase AFVs.

- ◇ The rule affects only vehicles that are centrally fueled or capable of being centrally fueled.
- ◇ Under EPAct, the following are considered alternative fuels: methanol, denatured ethanol and other alcohols; M85, E85, and other alcohols with gasoline or other fuels; natural gas; LPG; hydrogen; coal-derived liquid fuels; fuels (other than alcohol) derived from biological materials; and electricity (including electricity from solar energy). Chapter 2158 of the TGC as amended by SB 200 only recognizes these alternative fuels: electricity, natural gas, LPG, ethanol or E85, and methanol or M85.
- ◇ Fleets affected by EPAct, beginning in 1996 (MY 1997), must acquire AFVs according to the following percentages:

Year	State Govt.	Alternative Fuel Providers
MY 1997	10%	30%
MY 1998	15 %	50%
MY 1999	25 %	70%
MY 2000	50 %	90%
MY 2001 and thereafter	75 %	90%

Once more, current Texas requirements are broader in scope than EPAct. Under Section 2158.005 of the TGC, Texas state fleets with more than 15 vehicles are already required to have 50 percent of their fleet capable of operating on certain alternative fuels. Furthermore, under Section 2158.004 of the TGC, Texas state fleets with more than 15 vehicles have a requirement that all new vehicles purchased must be AFVs unless waivers are granted. Alternative fuel providers are not covered by Chapter 2158 of the TGC, so EPAct does represent a new regulatory burden for these fleets.

- ◇ Under EPAct, state government fleets (but not fuel providers) are allowed to formulate a compliance plan that would serve as an alternative to the above mandates, provided that it results in the

acquisition of equivalent numbers of vehicles. Only voluntary acquisitions or conversions by state, local, and private fleets may be used under the plan. The plan must be certified by the governor and submitted to DOE by June 1 of each compliance year.

(Note: The General Services Commission submitted the “1998 Texas Alternative State Plan” to the U.S. Department of Energy in November 1997. The plan represents a two-phased approach to achieve compliance with EPAct. Phase I includes AFVs from state, transit authority, and municipal fleets. Phase II will include the recruitment of additional state agencies and private sector fleets in the affected areas.)

- ◇ EPAct allows exemptions to be granted to both state governments and alternative fuel providers. These exemptions may be granted for a lack of fuels or a lack of vehicles. In addition, state governments may obtain exemptions if the use of alternative fuels would pose a financial hardship. Similarly, under SB 200 the GSC is authorized to grant waivers to state vehicle fleets on the basis of excessive cost or the lack of fuel or equipment. Private and local government fleets are allowed these same exemptions and others under Section 382.136 of the HSC as amended by SB 681.
- ◇ The EPAct rule also establishes a fleet credit program for the acquisition of vehicles that are either
 - in excess of the number required to be purchased, or
 - purchased before the required dates.

5. Status of Affected Fleets

5.1 Private and Local Government Fleets

Texas has approximately 6,500,000 vehicles registered within the state's four NAAs. Currently, TCF program participants in the four NAAs consist of 190 private fleets with more than 25 vehicles each and 65 local government fleets with more than 15 vehicles each. These fleets encompass 40,147 vehicles. Thus, affected private and local government fleet vehicles make up less than 1 percent of registered vehicles in the four NAAs.

Private Fleets

As of October 1, 1998, 190 out of an initial estimate of 1,531 private fleets (estimated from TxDOT and Dwight's databases) remained in the program after fleet size and vehicle exemptions were considered: 139 in the HG area; 14 in EP; and 37 in the DFW area, representing 28,989 fleet vehicles out of an initially estimated 108,799 vehicles (see Tables 3 and 5).

Table 3. Comparison of Affected and Nonaffected Private Fleets
(October 1, 1998)

Fleet Status	Nonattainment Area	No. of Entities	Total Vehicles	No. Vehicles Affected after All Exemptions
Affected	Dallas-Fort Worth	37	13,392	7,664
Affected	El Paso	14	1,588	1,179
Affected	Houston-Galveston	139	27,488	20,146
Total Affected	All Nonattainment Areas	190	42,468	28,989
Nonaffected	All Nonattainment Areas	1,341	66,331	NA
TOTALS:		1,531	108,799	28,989

Local Government Fleets

As of October 1, 1998, 65 out of an initial estimate of 101 local government fleets remained in the program after fleet size and vehicle exemptions were considered: 42 in the HG area; 2 in EP; and 21 in the DFW area, representing 11,158 fleet vehicles out of an initially estimated 28,867 vehicles (see Tables 4 and 5). A total of 86,616 vehicles received exemptions, leaving only 40,147 vehicles in the program out of the initial estimate of 129,732 vehicles (see Table 5).

Table 4. Comparison of Affected and Nonaffected Local Government Fleets

(October 1, 1998)

Fleet Status	Nonattainment Area	No. of Entities	Total Vehicles	No. Vehicles Affected after All Exemptions
Affected	Dallas-Fort Worth	21	9,569	4,452
Affected	El Paso	2	2,476	929
Affected	Houston-Galveston	42	16,520	5,777
Total Affected	All Nonattainment Areas	65	28,565	11,158
Nonaffected	All Nonattainment Areas	36	302	NA
TOTALS:		101	28,867	11,158

Table 5. Impact of Exemptions on Affected Fleets

(Fleets with over 25 Vehicles before Exemptions, October 1, 1998)

Type Fleet	Total Vehicles	Vehicles in Program after all Exemptions	Total Vehicles Exempted	EXEMPTIONS			
				Emergency or Law Vehicles	Leased or Rent Vehicles	Garaged-at-Home Vehicles	Over 26,000 lbs GVWR
Private - IN	42,468	28,989	13,479	372	1,565	5,466	6,076
Private ^a - OUT	58,487	NA	55,583	93	31,434	9,275	14,781
Total Private	100,955	28,989	69,062	465	32,999	14,741	20,857
Local Govt. - IN	28,585	11,158	17,407	12,716	2	1,717	2,972
Local Govt. ^a - OUT	192	NA	147	121	0	21	5
Total Local Govt	28,777	11,158	17,554	12,837	2	1,738	2,977
TOTALS	129,732	40,147^b	86,616	13,302	33,001	16,479	23,834

a. Entities with over 25 vehicles currently excluded from TCF Program because their exemptions bring them under 25 vehicles.

b. Does not include the 2,969 vehicles that did not receive exemptions but were not "in" the program because other vehicles within the same fleet did receive exemptions and the fleet size fell below the 25-vehicle minimum.

5.2 State Fleets

State agencies, state colleges, state schools, and state hospitals with more than 15 vehicles are required by Section 2158.005 of the TGC as amended by SB 200 to have 50 percent of their total fleet capable of operating on one of the five specified fuels: electricity, natural gas, LPG, ethanol or E85, and methanol or M85. However, these fleets are not required to have vehicles certified to the LEV standards. The GSC is authorized to grant waivers from the specified fuel use percentages to state vehicle fleets on the basis of excessive cost or the lack of fuel or equipment.

State fleets are required to report their alternative fuel use to the GSC. In cooperation with the GSC, the following information on state fleets has been compiled and included in this report.

As of the summer of 1998, 67 state agencies have a fleet of more than 15 vehicles. Nine of the 67 state agencies (13.4 percent) had 50 percent or more vehicles in their fleet capable of using one of the specified fuels. Waivers granted by the GSC have allowed an additional 11 state agencies (16.4 percent) to be in compliance with the specified fuel use mandates. With the addition of waivers, 29.9 percent of state agency fleets are in compliance.

However, since Section 2158.004 of the TGC as amended by SB 200 requires that affected state agencies with more than 15 vehicles purchase only vehicles capable of operating on one of the five specified fuels, variations in the total vehicle numbers may have occurred since these state vehicle numbers were reported to the TNRCC. All new purchases and conversions would increase the percentage of vehicles capable of operating on alternative fuels.

These 67 affected state agencies reported a combined total of 23,662 vehicles, with 10,236 (43.3 percent) of their vehicles capable of operating on an alternative fuel. Of these 10,236 state vehicles, 88 percent were dual-fuel conversions. According to the GSC, 20 percent of fuel purchases for state vehicles during fiscal year 1997 were alternative fuels. Of this 20 percent, 94.86 percent was propane; 5.13 percent was CNG; and .01 percent was other alternative fuels.

Because state agencies are required to purchase vehicles capable of operating on specified fuels, the availability of these fuels is a factor in implementing this part of the program. Table 6 shows the number of refueling sites for these specified fuels available for public use in Texas. Although no information is available on the specific number of sites for electric vehicles, it should be noted that most electric vehicles can be fueled at any electrical outlet.

Table 6. Number of Public Refueling Sites

Fuel Type	Public Fueling Sites Available Statewide
Compressed Natural Gas ¹	71
Electric ²	see table note 2
Ethanol	2
Liquefied Natural Gas ³	4
Methanol	0
LPG	987

SOURCE: This information was compiled from data provided by the U.S. Department of Energy, the Texas General Land Office, the Texas Railroad Commission, and the Texas State Technical College in Waco.

1. Total CNG sites including private = 89 (U.S. Dept. of Energy)
2. Electric vehicles can be recharged at most 110 or 220 volt outlets.
3. Total LNG sites including private = 15 (U.S. Dept. of Energy)

5.3 Transit Authority Fleets

The first part of this section describes the *overall effects on transit fleets* from legislative changes (SB 681). The rest of the section reports on *individual transit fleets*, divided into two main categories:

- ◇ fleets located in nonattainment areas (NAAs) and subject to the TCF program's rules;
- ◇ fleets outside NAAs and not affected by TCF rules.

Section 382.133 of the HSC as amended by SB 681 required the TNRCC to adopt regulations that require transit authorities in the serious, severe, or extreme NAAs of Texas and chartered under Chapters 451–53 of the TTC to ensure that 50 percent of their fleet vehicles are certified to meet the LEV standards. Similar requirements defined in the TTC cover all transit authorities statewide established under Chapters 451–53 of the TTC.

In 1998, the TNRCC surveyed transit authorities statewide in accordance with the data collection provisions of Section 382.137 of the HSC and the reporting requirements under Chapters 451–53 of the TTC.

Of the transit authorities surveyed, eight were defined as being chartered under Chapters 451–53 of the TTC and were required to meet the percent-of-fleet requirements using vehicles certified to meet the LEV standards. The results from the survey are presented in Table 7.

Table 7. Fleet Data Survey for Texas Transit Authorities (December 1997)

Transit Authorities	Total Vehicles	Total Fleet Vehicles ^a	LEV-certified Vehicles	MERCs/ PCCs	Grand-fathered Vehicles	Surplus Grand-fathered Vehicles	(50%) In Compliance
Metro Transit Authority of Harris County ^b	1,716	649	14	42 ^c	283	15	Yes
Dallas Area Rapid Transit ^b	1,226	442	90	131 ^d	0	183	Yes
Fort Worth Transit Authority ^b	230	95	20	0	28	73	Yes
Sun Metro, City of El Paso ^b	247	81	54	0	0	105	Yes
Corpus Christi Regional Transportation Authority	143	74	0	0	37	12	Yes
Laredo Municipal Transit System, El Metro	72	31	0	0	16	21	Yes
VIA Metropolitan Transit (San Antonio)	711	262	0	0	131	37	Yes
Capital Metro Transportation Authority (Austin)	404	91	0	0	46	64	Yes

a. All vehicles except those over 26,000 lbs.

b. Data reported September 1997

c. 42 Program Compliance Credits from the use of 14 ILEV-certified vehicles (see Section 5.3).

d. 131 MERC's from the replacement of 31 diesel buses by electric light-rail cars (see Section 5.3).

SB 681 Changes Affecting Transits

Sections 382.131 and 382.133 of the HSC as amended by SB 681 made it easier for mass transits to meet program requirements through three changes:

- ◇ the exemption of vehicles over 26,000 lbs. GVWR;
- ◇ the elimination of the 30 percent-of-fleet cap on grandfathering; and
- ◇ the extension of the grandfathering deadline to September 1, 1999.

Weight Exemption. Section 382.131 of the HSC as amended by SB 681 changed the definition of a fleet vehicle to exclude vehicles over 26,000 lbs. GVWR. As of December 1997, this exemption allowed the eight affected mass transits to remove 3,024 vehicles from their fleet vehicle count. Although these vehicles were excluded from the program, they were eligible to be grandfathered and could be used to meet compliance if they met the grandfathering requirements.

Elimination of Percentage Cap. The second change allows fleets to grandfather all eligible vehicles. Formerly, under Section 382.142 of the HSC as amended by SB 200, affected mass transits could not grandfather more than 30 percent of their fleet. With this cap removed, as of December 1997, the mass transits were capable of grandfathering, on average, 61 percent of their fleet. However, the actual percentage of grandfathered vehicles needed by mass transits to meet compliance was 32 percent.

Grandfathering Extension. The third change allows mass transits to grandfather eligible vehicles up to September 1, 1999 (one year later than allowed in Section 382.142 of the HSC as amended by SB 200). The extension of the grandfathering deadline to September 1, 1999, ensures transit fleets will have the option of purchasing, through that date, AFVs that do not necessarily meet LEV standards.

Overall Results of SB 681 Changes

As a result of these grandfathering regulation changes, all transit fleets are in compliance with the 50-percent-of-fleet LEV requirements (see Table 7). Without the changes to the grandfathering provisions, most transits would not have achieved the 50-percent-of-fleet requirements without additional LEV purchases (see Table 8).

A light-duty vehicle (LDV) can be grandfathered into the program and used for compliance purposes if the vehicle has a GVWR of 8,500 lbs. or less; has been certified to meet the Tier 1 emission standards for LDVs; and is capable of operating on electricity, LPG, natural gas, ethanol or E85, and methanol or M85.

A heavy-duty (HD) vehicle can be grandfathered into the program and used for compliance purposes if the vehicle has a GVWR of greater than 8,500 lbs.; meets the emission standards to which it was originally certified; and is capable of operating on electricity, LPG, natural gas, ethanol or E85, and methanol or M85.

A vehicle is capable of operating on a specified fuel when the vehicle has the necessary permanently installed equipment that enables the vehicle to use the fuel as a power source. Grandfathered vehicles are not eligible to generate MERCs or PCCs.

Table 8. How Grandfathering Changes Helped Transits to Comply

Transit Authority	Current Grandfathered Vehicles	Percentage of Compliance Achieved by Grandfathering
Metro Transit Authority of Harris County	283	87%
Corpus Christi Regional Transportation Authority	37	100%
Laredo Municipal Transit System, El Metro	16	100%
VIA Metropolitan Transit (San Antonio)	131	100%
Capital Metro Transportation Authority (Austin)	46	100%

Transit Authorities in NAAs Subject to TCF Rules

Metropolitan Transit Authority of Harris County (Houston Metro).

Houston Metro reported 1,716 vehicles in its fleet, of which 649 met the definition of “fleet vehicle” (see Section 4.2). Houston Metro still had the 14 ILEV-certified Ford Crown Victoria sedans reported in 1996. These 14 ILEVs continued to generate PCCs totaling 42 vehicles (i.e., one ILEV = three LEV equivalents). In addition, Houston Metro grandfathered 283 vehicles to meet the 50-percent-of-fleet LEV requirement.

The sum of Houston Metro’s credits and grandfathered vehicles was equivalent to 325 vehicles certified to the LEV standards or 50.07 percent of its 649 fleet vehicles. Houston Metro met the 50-percent-of-fleet requirement. Although not necessary for compliance, Houston Metro had an additional 15 vehicles eligible for grandfathering.

Dallas Area Rapid Transit (DART). DART reported 1,226 vehicles in its fleet, of which 442 met the definition of “fleet vehicle” (see Section 4.2). DART continued to benefit from 131 MERCs earned by the replacement of 31 conventional diesel-powered transit buses with an electric light-rail system, which became operational in 1996. With the addition of 90 certified LEV vehicles in 1997, the sum of DART’s credits and LEVs was equivalent to 221 vehicles or 50 percent of its 442 fleet vehicles. DART met the 50-percent-of-fleet requirement without using the 183 vehicles that were eligible for grandfathering.

Fort Worth Transit Authority (The T). The T reported 230 vehicles in its fleet, of which 95 met the definition of “fleet vehicle” (see Section 4.2). As part of meeting the 50-percent-of-fleet LEV requirement, the T grandfathered

28 vehicles. With the addition of 20 certified LEVs recently acquired, the sum of The T's LEVs and grandfathered vehicles was equivalent to 48 vehicles or 50.52 percent of its 95 fleet vehicles. The T met the 50-percent-of-fleet requirement. Although not necessary for compliance, the T had 73 additional vehicles that were eligible for grandfathering.

El Paso Transit Authority (Sun Metro). Sun Metro reported 247 vehicles in its fleet, of which 81 met the definition of "fleet vehicle" (see Section 4.2). Like DART, Sun Metro did not grandfather vehicles to meet the 50-percent-of-fleet LEV requirement because it acquired 54 certified LEVs since last reporting. These 54 LEVs were equivalent to 66.67 percent of its 81 fleet vehicles. Sun Metro met the 50-percent-of-fleet requirement. Although not needed for compliance, Sun Metro had 105 vehicles eligible for grandfathering.

Beaumont Municipal Transit System and Port Arthur Transit. Beaumont and Port Arthur transit authorities have told TNRCC's executive director that they are not chartered under Chapters 451–53 of the TTC and are therefore not covered under the TNRCC's reporting rules for transit authorities.

Transit Authorities Not Affected by the TNRCC's Rules

Chapters 451–53 of the TTC allow the governing boards of transit authority fleets to grant exceptions for their own fleets if they operate outside the state's NAAs. Exceptions from the clean-fuel vehicle requirements may be granted if these governing boards demonstrate that:

- ◇ their vehicles will be operating primarily in an area in which neither the authority nor a supplier has, or can reasonably be expected to establish, a central refueling station necessary for the operation of clean-fuel vehicles; or
- ◇ they are unable to acquire, or be provided, equipment or refueling facilities necessary to operate clean-fuel vehicles at a projected cost that is reasonably expected to result in no greater net costs than the continued use of equipment or refueling facilities used to operate conventional vehicles, measured over the expected useful life of the equipment or facilities supplied.

Corpus Christi Regional Transit (CCRT). CCRT reported 143 vehicles in its fleet, of which 74 met the definition of "fleet vehicle" (see Section 4.2). CCRT grandfathered 37 vehicles to meet the 50-percent-of-fleet LEV requirement, and did not report any LEV purchases. Therefore, the 37 grandfathered vehicles were equivalent to 50 percent of its 74 fleet vehicles. CCRT met the 50-percent-of-fleet requirement. Although not necessary for compliance, CCRT had an additional 12 vehicles eligible for grandfathering.

Laredo Municipal Transit System (El Metro). El Metro reported 72 vehicles in its fleet, of which 31 met the definition of “fleet vehicle” (see Section 4.2). El Metro grandfathered 16 vehicles to meet the 50-percent-of-fleet LEV requirement. El Metro did not report any LEV purchases. Therefore, the 16 grandfathered vehicles were equivalent to 51.61 percent of its 31 fleet vehicles. El Metro met the 50-percent-of-fleet requirement. Although not necessary for compliance, El Metro had an additional 21 vehicles eligible for grandfathering.

VIA Metropolitan Transit, San Antonio. VIA Metropolitan Transit reported 711 vehicles in its fleet, of which 262 met the definition of “fleet vehicle” (see Section 4.2). VIA grandfathered 131 vehicles to meet the 50-percent-of-fleet LEV requirement. VIA did not report any LEV purchases. Therefore, the 131 grandfathered vehicles were equivalent to 50 percent of its 262 fleet vehicles. VIA met the 50-percent-of-fleet requirement. Although not necessary for compliance, VIA had an additional 37 vehicles eligible for grandfathering.

Other Transit Authorities

Capital Metropolitan Transportation Authority, Austin (Capital Metro). The executive director of the TNRCC is authorized under Section 451.302 of the TTC to reduce or waive the 50 percent LEV requirement for up to two years, if:

- ◇ the metropolitan rapid transit authority was created under Chapter 451 of the TTC and was confirmed at a tax election before July 1, 1985; and
- ◇ the metropolitan rapid transit authority’s principal city has a population of less than 750,000.

The only transit authority affected by this provision is Capital Metro in Austin, Texas.

Capital Metro reported 404 vehicles in its fleet, of which 91 met the definition of “fleet vehicle” (see Section 4.2). Capital Metro grandfathered 46 vehicles to meet the 50-percent-of-fleet LEV requirement. Capital Metro did not report any LEV purchases. Therefore, the 46 grandfathered vehicles were equivalent to 50.55 percent of its 91 fleet vehicles. Capital Metro met the 50-percent-of-fleet requirement. Although not necessary for compliance, Capital Metro had an additional 64 vehicles eligible for grandfathering.

5.4 School District Fleets

SB 740, Acts of the 71st Texas Legislature, 1989, required school districts with more than 50 vehicles used for transporting children to purchase AFVs and maintain certain percentages of AFVs in their fleets by specified milestone dates. SB 7, Acts of the 73rd Texas Legislature, 1993, delayed compliance with the alternative fuel use mandates for school district fleets until September 1, 1997. SB 1, Acts of the 74th Texas Legislature, 1995, modified the Texas Education Code by removing all alternative fuel requirements from school district fleets. Because of the passage of SB 1, and the new definition of a fleet vehicle in Section 382.131 of the HSC as amended by SB 681, the TNRCC has imposed no alternative fuel or LEV requirements on school district fleets.

Appendix I—Legislative History

1989—SBs 740 and 769

SB 740, Acts of the 71st Texas Legislature, 1989, modified Vernon’s Texas Civil Statutes to require transit authorities chartered under Articles 1118x, 1118y, or 1118z of Vernon’s Texas Civil Statutes to purchase only vehicles capable of operating on alternative fuels. In addition, it required these transit authority fleets to have certain percentages of AFVs in their fleets as follows:

1. 30 percent by September 1, 1994;
2. 50 percent by September 1, 1996; and
3. 90 percent by September 1, 1998, pending a determination by the Texas Air Control Board (TACB).

Alternative fuels were initially defined as electricity, LPG, and natural gas. The TACB approved methanol as an alternative fuel in March of 1992, and ethanol as an alternative fuel in February of 1993. SB 740 also modified the State Purchasing and General Services Act requiring state agency and school district fleets to use alternative fuels following the same implementation schedule as transit authority fleets. State agency and school district alternative fuel use was also subject to a determination for the 90 percent alternative fuel use requirement.

SB 769, Acts of the 71st Texas Legislature, 1989 modified the Texas Clean Air Act (Chapter 382 of the HSC) to require the TACB to implement rules requiring transit authorities chartered under Articles 1118x, 1118y, or 1118z of Vernon’s Texas Civil Statutes, and located within a NAA, to have certain percentages of alternatively fueled vehicles in their fleets as follows:

1. 30 percent by September 1, 1994;
2. 50 percent by September 1, 1996; and
3. 90 percent by September 1, 1998, pending a determination by the TACB.

SB 769 also required the TACB to make a determination by September 1, 1996, whether to include local governments and private fleets in the alternative fuel mandates starting in 1998.

1990—FCAA Amendments

The FCAA Amendments required states with serious and above ozone and CO NAAs to implement a LEV program for centrally fueled fleets, otherwise known as the FCFF program. The FCAA Amendments also included an opt-out provision, which allowed states to implement a different program, if the program was projected to achieve equivalent emission reductions to the FCFF program.

1991—HB 734

House Bill (HB) 734, Acts of the 72nd Texas Legislature, 1991, required the TACB to implement rules under Article 1118x of Vernon's Texas Civil Statutes requiring certain transit authorities (identified as applying to Capital Metro in Austin) to apply for exceptions from Article 1118x of Vernon's Texas Civil Statute's alternative fuel requirements through the TACB.

SB 2, Acts of the 72nd Texas Legislature, First Called Session, 1991, created the TNRCC from the Texas Water Commission, parts of the Texas Department of Health, and the TACB.

1992—Decision to Opt out of FCFF

In 1992, the TACB opted out of the FCFF through a committal SIP. The TACB made its decision to opt out because Texas already had an alternative fuels program covering certain fleets (SB 740 and 769). The TACB did not feel it was appropriate to develop different fleet programs covering the same fleets and intended to use as much legislative direction as possible in the opt-out program.

1993—SBs 2 and 7

SB 7, Acts of the 73rd Texas Legislature, 1993, modified the Education Code by removing the 30 percent alternative fuel use requirement from school districts and delaying the 50 percent alternative fuel use requirement until September 1, 1997. In addition, SB 7 removed the determination required of the TACB for school districts and required these fleets to have 90 percent alternative fuel use by September 1, 2001.

On September 1, 1993, the TNRCC was formed as a result of SB 2, Acts of the 72nd Texas Legislature, First Called Session.

1994—TAFF Adoption and Exceptions

In 1994, the TNRCC formally adopted the TAFF program rule and SIP opt-out. This program required specified alternative fuel use for those entities required at that time to use alternative fuels by the Texas Legislature: transit authorities, school districts, and state agencies. It also required these entities to meet the federal LEV requirements beginning in September 1998 using an approved alternative fuel in order to achieve equivalency with the

FCFF program. In addition, the TAFF required local government and private fleets to meet the LEV standards, but on their fuel of choice.

Exceptions were allowed under Articles 1118x, 1118y, and 1118z of Vernon's Texas Civil Statutes, the TGC, and the HSC. Transit authorities were allowed to self-certify the need for an exception from the requirements of Articles 1118x, 1118y, or 1118z but were required to have the TNRCC grant an exception from the identical requirements under the HSC. State agency fleets and school district fleets were originally allowed to apply for exceptions from the GSC. SB 7 changed the exception requirements for school districts to allow the individual school boards to self-certify the need for an exception.

1995—SBs 1 and 200

SB 200, Acts of the 74th Texas Legislature, 1995, modified Articles 1118x, 1118y, and 1118z of Vernon's Texas Civil Statutes (recodified in the TTC by SB 971, Acts of the 74th Texas Legislature, 1995, as Chapters 451–53), Chapter 382 of the HSC, and Chapter 2158 of the TGC. SB 200 redefined the meaning of alternative fuel from meaning one of five original specified fuels (electricity, LPG, natural gas, ethanol or E85, and methanol or M85) to any vehicle/fuel combination that is certified to the federal LEV standards regardless of fuel type. This modification required the TNRCC to implement the LEV standards provisions under the HSC in the state's four NAAs. Therefore, all transit authorities (chartered under Chapters 451–53 of the TTC), local governments, and private fleets located in the state's NAAs had to purchase and maintain certain percentages of LEV-certified vehicles. SB 200 did not alter the fuel use requirements for state fleets nor did it impose any emission standard for state fleets. SB 1, Acts of the 74th Texas Legislature, 1995, removed all alternative fuel use requirements from school district fleets.

SB 200 also modified the TTC requiring all transit authorities chartered under Chapters 451–53 of the TTC regardless of an area's attainment status, to meet the LEV standards (transit authority fleets covered by the LEV use requirements in attainment areas include: Laredo, Corpus Christi, Austin, and San Antonio). Requirements in the HSC and TTC are identical except that the TTC allows transit authorities to self certify the need for an exception.

1997—SB 681

SB 681, Acts of the 75th Texas Legislature, 1997, modified Sections 382.131–34, 382.136, and 382.142–43 of the HSC. It also modified Sections 451.301–2, 452.251–52, and 453.251–52 of the TTC.

Section 382.132 of the HSC as amended by SB 681 redefined the metropolitan areas affected by rules adopted by TNRCC under Sections 382.133–36 of the HSC. Under the new language, TCF rules apply only to serious, severe, or extreme NAAs with a population of 350,000 or more.

Section 382.131 (7) of the HSC as amended by SB 681 changed the definition of fleet vehicle; the new definition has been quoted in full in Section 4.2 of this report.

In addition, this new definition of fleet vehicle in Section 382.131 (7) of the HSC as amended by SB 681 changed the definition of fleet vehicle to exclude school buses from the requirements of the TCF program. Previously, school buses had been excluded from the program by policy, to adhere to the intent of SB 1, Acts of the 74th Legislature.

Section 382.134 of the HSC as amended by SB 681 requires local government and private fleets to have a gradually increasing percentage of LEVs among their total fleet purchases. The new percent-of-purchase requirements are less stringent than they had previously been under Section 382.134 of the HSC as amended by SB 200. Under SB 200, the percent-of-purchase requirements had been 90 percent of new light- and heavy-duty vehicles after September 1, 2002.

Once a fleet reaches 70 percent, and maintains it, Section 382.134 of the HSC as amended by SB 681 stipulates that it cannot be required to purchase more vehicles. Under SB 200, this maximum had previously been set at 90 percent.

Under Chapters 451–53 of the TTC as amended by SB 681, law enforcement and emergency vehicles are excluded from the 100-percent-LEV purchase requirement for mass transit fleets.

Section 382.134 of the HSC as amended by SB 681 removed the percent-of-total-fleet requirements so that local government and private fleets only have to meet the percent-of-purchase requirements mentioned earlier.

Sections 382.131–32 of the HSC as amended by SB 681 made it easier for mass transits to meet program requirements through three changes to the grandfathering provisions:

- ◇ The exemption of vehicles over 26,000 lbs. GVWR;
- ◇ The elimination of the 30 percent-of-fleet cap on grandfathering; and
- ◇ The extension of the grandfathering deadline to September 1, 1999.

Although Section 382.133 of the HSC as amended by SB 681 gave mass transit fleets an additional year to grandfather vehicles, Section 382.142 of the HSC as amended by SB 681 took away three years from the grandfathering provisions for private and local government fleets. Like mass transits, private and local government fleets are able to take advantage of the elimination of the 30-percent-of-fleet grandfathering cap. And unlike

the mass transits, private and local government fleets have always been allowed to exclude vehicles greater than 26,000 lbs. GVWR.

Section 382.136 of the HSC as amended by SB 681 added one new exception to the TCF program, allowing any affected fleet to be excluded from the LEV purchase requirements if it can demonstrate that it is unable to purchase LEVs from a manufacturer or it is unable to convert vehicles to LEV standards that meet the normal requirements of its fleet.

Appendix II—State Fleet Data

The GSC is authorized under Chapter 2158 of the TGC to grant waivers from the specified fuel use percentages to state vehicle fleets on the basis of excessive cost or the lack of fuel or equipment. The manner in which GSC grants waivers affects how each state fleet determines compliance with the requirement that 50 percent be capable of using specified fuels. The GSC subtracts the number of waived vehicles from a fleet's total vehicle population and then recalculates the percentage of specified fuel use vehicles based on this new total.

For example: the Texas Commission for the Blind (TCB) reported that it has 20 total vehicles, of which 8 (40 percent) are capable of operating on one of the five specified fuels. However, the TCB has received two waivers from the GSC. GSC subtracts these two waived vehicles from TCB's total fleet of 20 vehicles, reducing the affected vehicle fleet to 18 vehicles. The percentage of vehicles capable of operating on one of the five specified fuels is then based on this reduced total fleet number, resulting in a compliance percentage of 44 percent.

Since the last biennial report to the Texas Legislature, the GSC has changed its reporting format. To streamline reporting, some agencies have combined their data with related agencies, thus decreasing the number of affected reporting agencies from 92 to 67. This should have no impact on the actual fleet size or compliance data. Also note that the total number of vehicles shown is the total number of vehicles from the agencies reporting (the state agencies affected by Chapter 2158 of the TGC), not the total number of vehicles in the entire state fleet.

SOURCE: Data for the accompanying table was supplied by the General Services Commissions (GSC) as of 7/24/98. The breakdown of AFVs data was supplied to GSC by the state agencies, some of which reported incomplete or inaccurate data.

Status of State Agencies' Alternately Fueled Vehicles (AFVs), as of 7/24/98							
Agency Number	Agency Name	Number of Vehicles	Number of AFVS	Breakdown of AFVs	Percent of AFVs	GSC Vehicle Waivers	Percent-of-fleet Meeting Requirement
102	House of Representatives	5	5	N/A	100	0	NA ¹
302	Attorney General	35	29	6 CNG 23 LPG	83	0	83
303	GSC	147	23	15 CNG 9 LPG	16	73	31
304	Comptroller of Public Accounts	17	6	6 CNG	35	0	35
305	General Land Office	69	63	34 CNG 17 LPG	91	4	97
307	Secretary of State	1	1	1 CNG	100	0	NA ¹
308	State Auditor	1	1	1 CNG	100	0	NA ¹
318	Texas Commission for the Blind	20	8	9 CNG	40	2	44
320	Texas Workforce Commission	28	13	13 LPG	34	2	50
324	Department of Human Services	65	32	1 CNG 31 LPG	49	0	49
330	Texas Rehabilitation Comm.	9	1	1 LPG	11	0	NA ¹
362	Texas Lottery Commission	5	1	1 LPG	20	0	NA ¹
401	Adjutant General	31	1	1 CNG	3	0	3
453	Texas Workers Compensation	4	1	1 CNG	25	0	NA ¹
454	Texas Department of Insurance	5	2	2 CNG	40	0	NA ¹
455	Railroad Commission	287	158	2 CNG 156 LPG	55	0	55
456	Board of Plumbing Examiners	11	2	2 CNG	18	0	NA ¹
457	Board of Public Accountancy	1	1	1 CNG	100	0	NA ¹

Agency Number	Agency Name	Number of Vehicles	Number of AFVS	Breakdown of AFVs	Percent of AFVs	GSC Vehicle Waivers	Percent-of-fleet Meeting Requirement
501	Texas Department of Health	141	80	21 CNG 59 LPG	57	1	57
506	U.T. M.D. Anderson Cancer Center	143	45	42 CNG 6 LPG	31	0	31
530	Department of Protective and Regulatory Service	11	8	9 LPG	73	0	NA ¹
551	Department of Agriculture	234	169	2 CNG 167 LPG	72	0	72
555	Texas Agricultural Extension	231	43	7 CNG 37 LPG	19	183	90
556	Texas Ag. Experiment Station	585	76	1 CNG 83 LPG	13	461	61
577	Texas Animal Damage Control	63	28	28 LPG	44	2	46
580	Texas Water Development Board	55	33	33 LPG	60	1	61
582	TNRCC	384	289	1 CNG 288 LPG	75	15	78
601	Texas Department of Transportation	9120	5969	974 CNG 3809 LPG	65	1922	83
602	Turnpike Authority	73	22	22 LPG	30	0	30
655	Texas Department of MHMR	2605	1030	50 CNG 948 LPG 32 Other	40	457	48
694	Texas Youth Commission	323	41	6 CNG 35 LPG	13	206	35
696	Texas Department of Criminal Justice	2144	679	7 CNG 753 LPG	32	501	41
711	Texas A&M University	820	84	84 LPG	10	613	41

Agency Number	Agency Name	Number of Vehicles	Number of AFVS	Breakdown of AFVs	Percent of AFVs	GSC Vehicle Waivers	Percent-of-fleet Meeting Requirement
712	Texas Engineering Exp. Station	34	7	1 LPG 6 Other	21	12	32
713	Tarleton State University	73	7	N/A	10	8	11
714	UT Arlington	215	25	25 CNG	12	164	49
715	Prairie View A&M University	43	13	8 CNG 5 LPG	30	0	30
716	Texas Engineering Ext. Service	173	24	24 LPG	14	0	14
717	Texas Southern University	41	1	1 LPG	2	0	2
718	Texas A&M - Galveston	26	6	6 LPG	23	0	23
719	Texas State Technical College	28	1	1 LPG	4	0	4
719-2	TSTC - Harlingen	53	1	1 LPG	2	0	2
719-4	TSTC - Sweetwater	27	0	1 LPG	0	0	0
721	UT - Austin	717	83	36 CNG 54 LPG	12	611	78
723	UT Medical Branch - Galveston	200	65	65 LPG	33	16	35
724	UT - El Paso	126	8	5 LPG 3 Other	6	0	6
729	Southwestern Medical Cent.	86	29	29 LPG	34	19	43
730	University of Houston	136	10	10 LPG	7	0	7
731	Texas Woman's University	84	19	19 LPG	23	0	23
732	Texas A&M - Kingsville	123	7	N/A	6	115	88
733	Texas Tech University	344	123	123 LPG	36	216	96
734	Lamar University - Beaumont	71	23	5 CNG 18 LPG	32	3	34
735	Midwestern University	59	20	20 LPG	34	2	35

Agency Number	Agency Name	Number of Vehicles	Number of AFVS	Breakdown of AFVs	Percent of AFVs	GSC Vehicle Waivers	Percent-of-fleet Meeting Requirement
736	UT-Pan American	82	6	N/A	7	0	7
737	Angelo State University	81	33	1 CNG 32 LPG	41	8	45
738	UT - Dallas	64	6	6 CNG	9	53	55
739	Texas Tech - Health Science	42	19	19 LPG	45	20	86
742	UT - Permian Basin	20	2	N/A	10	15	40
743	UT - San Antonio	80	10	10 CNG	13	64	63
744	UT - Health Science Cent. Houston	88	25	25 LPG	28	0	28
745	UT - Health Science Center - SA	55	2	2 LPG	4	48	29
747	UT - Brownsville	36	16	16 LPG	44	0	44
750	UT - Tyler	20	2	1 CNG 1 LPG	10	14	33
751	East Texas State University	81	30	30 CNG	37	21	50
752	University of North Texas	262	4	4 LPG	2	28	2
753	Sam Houston State University	105	33	32 LPG	31	58	70
754	Southwest Texas State	237	33	3 CNG 30 LPG	14	0	14
755	Stephen F. Austin University	173	12	12 LPG	7	10	7
756	Sul Ross State University	61	3	3 LPG	5	0	5
757	West Texas A&M University	106	35	35 CNG	33	0	33
759	UH - Clear Lake	36	4	4 LPG	11	0	11
760	Corpus Christ State University	47	7	7 LPG	15	0	15
763	U. N. Tex HSC - Ft. Worth	26	9	N/A	35	4	41
764	East Texas State U - Texarkana	5	1	1 LPG	20	0	NA ¹

Agency Number	Agency Name	Number of Vehicles	Number of AFVS	Breakdown of AFVs	Percent of AFVs	GSC Vehicle Waivers	Percent-of-fleet Meeting Requirement
771	Texas School for the Blind	25	13	N/A	52	1	54
772	Texas School for the Deaf	40	6	1 CNG 5 LPG	15	0	15
785	UT HSC - Tyler	55	15	15 LPG	27	0	27
802	Parks and Wildlife Department	1561	518	N/A	33	110	36

Total Number of State Agencies Reporting ²	Total Number of Vehicles ²	Total Number of AFVs ²	Overall Percentage of AFVS ²	Total Number of GSC Vehicle Waivers ²	Overall Percentage of Fleet Meeting Requirement ²
67	23,662	10,236	43.3%	6063	58.1%

¹These 11 agencies reported alternative fuel usage data to the GSC but, because of their small fleet size, they are not required to have 50 percent of their fleet capable of operating on one of the five specified fuels.

²These totals represent just 67 of the 78 state agencies listed above. These 67 agencies are the only ones that are required to have 50 percent of their fleet capable of operating on one of the five specified fuels (see footnote 1 for further detail).

Appendix III—Availability of LEVs

Model Year 1997

The following two tables list the MY 1997 LDVs, light-duty trucks (LDTs), and HD engines certified by the EPA to meet the LEV standards. They are listed by the EPA as being available for use in Texas fleets. These tables also list the MY 1997 LDVs, LDTs and HD engines certified by the EPA to meet the ultralow-emission vehicle (ULEV), inherently low-emission vehicle (ILEV), and zero-emission vehicle (ZEV) standards, which are more stringent than the LEV standards.

Model Year 1997 Light-Duty Vehicles and Trucks

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
LEV	IMPCO TECH.	VTJ5.7AZN7EK IMPCO-LDCNGT-97-01	Sierra C-Pickup	Gasoline (Tier 1) CNG (LEV)	LDT
ULEV	None Available at this Time				
ILEV + ULEV	CHRYSLER	VCR3.328C7JK CHRYSLER- LDCLT-97-01-00	Dodge: Caravan (2WD) Plymouth: Voyager (2WD)	CNG	LDT
	FORD	VFM4.6V8C7EK FORD-LDCNGV-97-01	Crown Victoria	CNG	LDV
	FORD	VFM5.468C7FK FORD-LDCNGT-97-01 REVISED	F250 2WD	CNG	LDT
	FORD	VFM5.468C7EK FORD-LDCNGT-97-02	FORD: E250 2WD, E350 2WD	CNG	LDT
ILEV + ZEV	GENERAL MOTORS	VGM0.0VYZ5RE GM-ZEV-97-01	EV 1	Electricity	LDV
	GENERAL MOTORS	VGM0.02YZ5RE GM-ZEV-LDT-97-01	Chevrolet: S-10 Electric Pickup	Electricity	LDT
	HONDA	VHN000VYZ5ZA HN-ZEV-97-01	EV PLUS	Electricity	LDV
ZEV	CHRYSLER	VCR0.02YZZRA CHRYIS-ZEV-97-01	Dodge: Caravan 2WD, Plymouth: Voyager 2WD	Electricity	LDT

Model Year 1997 Certified Heavy-Duty Engines

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
LEV	CUMMINS	CUMMINS-NGE (MHDD)-97-18	B5.9-195G	Natural Gas	HD
	CUMMINS	CUMMINS-NGE (MHDD)-97-19	B5.9-195F	Natural Gas	HD
	CUMMINS	CUMMINS-NGE (MHDD)-97-22	C8.3-250G	Natural Gas	HD
	DETROIT DIESEL	DDC-NGE (LHDDE)-97-01	SERIES 30G	Natural Gas	HD
ULEV	CUMMINS	CUMMINS-NGE (MHDE)-97-01	B5.9-195G	Natural Gas	HD

Model Year 1998

The following two tables list the MY 1998 LDVs, LDTs and HD engines certified by the EPA to meet the LEV standards. They are listed by the EPA as being available for use in Texas fleets. These tables also list the MY 1998 LDVs, LDTs, and HD engines certified by the EPA to meet the ULEV, ILEV, and ZEV standards, which are more stringent than the LEV standards.

Model Year 1998 Light-Duty Vehicles and Trucks

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
LEV	GFI CONTROL SYSTEMS, INC.	WG9XT05.46BF GFI-HLDT-DF-01	F150/F250 LPG	Gasoline (Tier 1) LPG (LEV)	LDT
	GFI CONTROL SYSTEMS, INC.	WG9XT05.45BF GFI-HLDT-DF-98-02	F150 LPG	Gasoline (Tier 1) LPG (LEV)	LDT
	GFI CONTROL SYSTEMS, INC.	WG9XT05.46GF GFI-HLDT-DF-98-03	F150/F250 CNG	Gasoline (Tier 1) CNG (LEV)	LDT
	GFI CONTROL SYSTEMS, INC.	WG9XT05.46GN GFI-HLDT-DF-98-04	E250/E350 CNG	Gasoline (Tier 1) CNG (LEV)	LDT
	HONDA	WHNXV01.6CA3 260LDV07	Honda: Civic	Gasoline	LDV
	HONDA	WHNXV02.3PA3 260LDV10	Honda: Accord	Gasoline	LDV
	IMPCO TECH, INC.	WTJXT05.7187 IMPCO-LDCNGT-98-1	Impco: Sierra C-Pickup	Gasoline (Tier 1) CNG (LEV)	LDT
	MERCEDES BENZ	WMBXV04.3GNB 200LDV15	Mercedes- Benz: C43	Gasoline	LDV
	SAN MARINO ENGINE, INC.	WSMEV04.6GAA SME-LDVCNG-98-01	San Marino Eng, Inc: Crown Victoria	Gasoline (TLEV) CNG (LEV)	LDV
	TOYOTA	WTYXT04.7GBX 570LDT13	Toyota: Landcruiser Wagon; Lexus: LX470	Gasoline	LDT
ULEV	None Available at this Time				
ILEV + ULEV	FORD	WFMXT05.4RP6 FORD-LDCNGT-98-01	E250 2WD, E350 2WD	CNG	LDT
	FORD	WFMXT05.4RP5 FORD-LDCNGT-98-02	F250 2WD	CNG	LDT
ILEV + ULEV	FORD	WFMXV04.6EAA FORD-LDCNGV-98-01	Crown Victoria	CNG	LDV
	LIPHARDT	WLPXH05.7HD1 LIPHARDT- LDTLPG-98-01	LIPHARDT; AFV-2000	LPG	LDT

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
ILEV + ZEV	FORD	WFMXT00.02Z5 FORD-ZEV-98-01	Ford: Ranger	Electricity	LDT
	GENERAL MOTORS	WGMXT00.0200 GM-ZEV-LDT-98-01	Chevrolet: S-10 Electric Pickup	Electricity	LDV
	HONDA	WHNXV0000EL5 HN-ZEV-LDV-98-01	EV PLUS	Electricity	LDV
	NISSAN	WNSXV0000GLA NISSN-ZEV-98-01	Nissan: Altra EV	Electricity	LDT
	TOYOTA	WTYXT00.0ZZZ TOYOT-ZEV-98-01	RAV4 EV	Electricity	LDT

Model Year 1998 Certified Heavy-Duty Engines

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
LEV	BAYTECH CORPORATION	WBYTH04.3LEV BYT-98-NGE-01	N/A	Natural Gas	HD
	CUMMINS	WCEXH0359BAJ CEX-NGE(MHDD)-98-10	N/A	Natural Gas	HD
	CUMMINS	WCEXH0359BAL CEX-NGE(MHDD)-98-12	N/A	LPG	HD
	CUMMINS	WCEXH0505CAG CEX-NGE(MHDD)-98-07	N/A	Natural Gas	HD
	CUMMINS	WCEXH0505CAH CEX-NGE(UBHDD)-98-08	N/A	Natural Gas	HD
	CUMMINS	WCEXH0505CAI CEX-NGE(HHDD)-98-09	N/A	Natural Gas	HD
	CUMMINS	WCEXH0611LAC CEX-NGE(HHDD)-98-15	N/A	Natural Gas	HD
	CUMMINS	WCEXH0611LAD CEX-NGE(UBHDD)-98-16	N/A	Natural Gas	HD
ULEV	CUMMINS	WCEXH0359BAK CEX-NGE(MHDD)-98-11	N/A	Natural Gas	HD
ULEV	CUMMINS	WCEXH0611LAB CEX-NGE(HHDD)-98-14	N/A	Natural Gas	HD
ULEV	CUMMINS	WCEXH0611LAD CEX-NGE(UBHDD)-98-16	N/A	Natural Gas	HD
ULEV + ILEV	BAYTECH CORPORATION	WBYTH04.3IUUV BYT-98-NGE-02	N/A	Natural Gas	HD
ILEV	BAYTECH CORPORATION	WBYTH04.3ILV BYT-98-NGE-03	N/A	Natural Gas	HD

Model Year 1999

The following two tables list the MY 1999 LDVs, LDTs, and HD engines, certified by the EPA to meet the LEV standards as of October 1998. They are listed by the EPA as being available for use in Texas fleets. These tables also list the MY 1999 LDVs, LDTs, and HD engines certified by the EPA to meet the ULEV, ILEV, and ZEV standards, which are more stringent than the LEV standards.

Model Year 1999 Light-Duty Vehicles and Trucks

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
LEV	FORD	XFMXT05.46FF 30LDT12	Ford: Expedition 2WD & 4WD; Lincoln: Navigator 2WD & 4WD	Gasoline	LDT
	FORD	XFMXT05.46FF 30LDT13	Ford: Expedition 2WD	Gasoline	LDT
	FORD	XFMXT04.66FF 30LDT33	Ford: Expedition 2WD & 4WD	Gasoline	LDT
	FORD	XFMXT04.66FF 30LDT34	Ford: Expedition 2WD & 4WD	Gasoline	LDT
	FORD	XFMXT03.82GF 30LDT28	Ford: Windstar FWD Van, Windstar FWD Wagon	Gasoline	LDT
	FORD	XFMXT03.02GF 30LDT29	Ford: Windstar FWD Van, Windstar FWD Wagon	Gasoline	LDT
LEV	FORD	XFMXT04.02GF 30LDT68	Ford: Explorer 2WD & 4WD; Mercury: Mountaineer 2WD & 4WD	Gasoline	LDT
	FORD	XFMXT05.02GF 30LDT69	Ford: Explorer 2WD & 4WD; Mercury: Mountaineer 2WD & 4WD	Gasoline	LDT
	SUZUKI	XSKXT2.49LHA 540LDT01	Suzuki: Grand Vitara 4-door 4WD, Grand Vitara 4-door 2WD	Gasoline	LDT
	TOYOTA	XTYXV03.0GBE 570LDV01	Lexus: RX300, RX300 4WD	Gasoline	LDV
ULEV	None Available at this Time				
ILEV + ULEV	None Available at this Time				
ILEV + ZEV	HONDA	XHNXV0000EL5 HN-ZEV-LDV-99-01	EV PLUS	Electricity	LDV

Model Year 1999 Certified Heavy-Duty Engines

Emission Standard	OEM	Engine Family/ Certification No.	Models	Fuel (s)	Vehicle Type
LEV	NAVISTAR	XNVXH07.3ACB NVX-LHDD-99-02	Ford F-series Superduty-Navistar	Diesel	HD
ULEV	None Available at this Time				
ILEV + ULEV	None Available at this Time				
ILEV + ZEV	None Available at this Time				

Appendix IV—Emission Standards

The tables in this appendix show the federal LDV and HD vehicle emission standards that are the basis of the clean fuel fleet vehicle programs.

There are several ways to measure hydrocarbons from vehicles: total hydrocarbons; nonmethane hydrocarbons (NMHC), which removes methane from the mass of emissions; VOCs, which is the measurement used for most SIP calculations; and nonmethane organic gas (NMOG), which includes all organic gases except methane. For the purposes of this discussion NMHC, NMOG, and VOCs are treated as equivalent.

Light-Duty Vehicle Exhaust Emission Standards

LDV (<8,500 lbs. GVWR) Exhaust Emission Standards^a in grams per mile:						
Category	NMOG ^b	CO	NO _x	PM ^c	HCHO ^d	Evap ^e
Tier 0	0.34 ^f	3.4	1.0	0.20	-	2
Tier 1	0.25	3.4	0.4 ^g	0.08	-	2
TLEV	0.125	3.4	0.4	0.08	0.015	2
LEV	0.075	3.4	0.2	0.08	0.015	2
ULEV	0.040	1.7	0.2	0.08	0.008	2
ILEV	0.075	3.4	0.2	0.08	0.008	5 ^h
ZEV	0.0	0.0	0.0	0.0	0.0	0.0

a. These light-duty standards are only for the lightest weight class of LDVs. There are four other classes of LDVs with different LEV standards.
 b. Nonmethane organic gas
 c. Diesel powered vehicles only.
 d. Formaldehyde.
 e. Grams per test.
 f. Reported as nonmethane hydrocarbons (NMHC)
 g. Diesel powered vehicles =1.0 grams/mile
 h. Tested with evaporative control system disabled.

Heavy-Duty Vehicle Exhaust Emission Standards

HD Vehicle (>8,500 lbs. GVWR) Exhaust Emission Standards in grams per brake horsepower-hour:							
Category	HC	NMHC+NO _x	CO	NO _x	PM ^a	HCHO	Evap
MY 1993	1.3	-	15.5	5.0	0.25	-	3 ^b
MY 1994-7	1.3	-	15.5	5.0	0.10 ^c	-	3 ^b
MY 1998-9	1.3	-	15.5	4.0	0.10 ^c	-	3 ^b
LEV	-	3.8	15.5	-	0.10	-	3 ^b
ULEV	-	2.5	7.2	-	0.05	0.025	3 ^b
ILEV	-	2.5	14.4	-	0.10	0.05	2
ZEV	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004	-	2.5	15.5	-	0.10 ^d	-	3 ^b

a. Diesel only.
b. Vehicles with GVWR >14,000 lbs. = 4 grams per test.
c. Urban buses = 0.07 g/bh-hr.
d. Urban buses = 0.05 g/bh-hr.

Before the passage of the FCAA Amendments, the cleanest conventional light duty¹ standard was the Tier 0 standard. The FCAA Amendments established Tier 1 standards, which were stricter emission standards for LDVs and LDTs. The Tier 1 standards started phasing in during MY 1994 for LDVs and LDTs up to 6,000 lbs. GVWR (automobiles and small pickups), and for MY 1998 for LDTs between 6,001 and 8,500 lbs. GVWR (in general, - ton pickups and vans). All new vehicles offered for sale in the United States must be certified, at a minimum, to these conventional standards.

The FCAA Amendments also established the clean fuel fleet vehicle emission standards, the LEV standards. The LEV standards were originally adopted by the state of California in September 1990, before signing of the FCAA Amendments in November 1990. The FCAA Amendments adopted these California LEV standards for the FCFE program. Transitional low-emission vehicle standards (TLEV) are standards that are helping manufacturers transition between Tier 1 and LEV in California.

HD standards have been targeted at reducing particulate and nitrogen oxide (NO_x) emissions. Urban bus particulate standards are more stringent than

¹light-duty vehicle means passenger automobiles and light-duty trucks weighing up to 8,500 lbs. GVWR.

particulate standards for other types of HD vehicles. HD standards are measured in grams per brake horsepower hour, not grams per mile, as in the light-duty standards. There is no direct relationship between these two units; therefore, comparisons between light and HD vehicle standards are not valid. The LEV standards for HD vehicles are more stringent for the two major ozone-producing emissions, hydrocarbons (HC) and NO_x, than conventional HD standards but are the same as conventional HD standards for carbon monoxide (CO) and particulate matter. In MY 2004, the conventional HD standards are proposed by the EPA to become more stringent than the LEV standards for HC, NO_x, and particulate matter (*Federal Register*, Volume 61, Number 125, June 27, 1996).

Appendix V—FCFF Program vs. TCF Program

The purpose of this table is to provide a basic comparison of fleet requirements under federal and state legislation in Texas.

Issues	Federal Clean Fuel Fleet Program	TCF Program under SB 200 (as enacted by the 74th Legislature, 1995)	TCF Program under SB 681 (as enacted by the 75th Legislature, 1997)
Covered Areas	All Covered Fleets: Serious and above NAAs.	Private, Local government and Transit fleets under HSC: Ozone, CO, NO _x , and/or particulate NAAs of 350,000 or more (HG, DFW, EP, and BP) Transit under TTC: Statewide State fleets: Statewide	Private, Local government, and Transit fleets under HSC: Serious, severe, or extreme NAAs of 350,000 or more (HG, DFW, EP) Transit under TTC: Statewide State fleets: Statewide
Covered Fleets	Private, Local government, Transit, State, Federal, and School district: 10 or more centrally fueled or capable of being centrally fueled.	Private: more than 25 fleet vehicles Local government: more than 15 vehicles Transit: all vehicles State: more than 15 vehicles Federal and School district: not covered	Private: more than 25 fleet vehicles Local government: more than 15 vehicles Transit: all vehicles 26,000 lbs. GVWR State: more than 15 vehicles Federal and School district: not covered
Emission standards	All Covered Fleets: LEV required. ULEV, ILEV & ZEV earn credit.	Private, Local government and Transit: LEV required. ULEV, ILEV & ZEV earn credit. State: No emission standard; limited to 5 specified fuels	Private, Local government and Transit: LEV required. ULEV, ILEV & ZEV earn credit. State: No emission standard, limited to 5 specified fuels.

Issues	Federal Clean Fuel Fleet Program	TCF Program under SB 200 (as enacted by the 74th Legislature, 1995)	TCF Program under SB 681 (as enacted by the 75th Legislature, 1997)
Phase-in Schedule	<p>All Covered Fleets: LDVs, LDTs: 30% of purchases in MY 1999 50% of purchases in MY 2000 70% of purchases in MY 2001+ HD vehicles: 50% in MY 1999 thru 2001+</p>	<p>Private and Local Government: 10% of total fleet by 9/1/98 or 30% of purchases after 9/1/98 20% of total fleet by 9/1/00 and 50% of purchases after 9/1/00 45% of total fleet by 9/1/02 and 90% of purchases after 9/1/02.</p> <p>(Acquisitions prior to 9/1/98 may be used for compliance if they: operate on specified fuels; meet or exceed Tier I standards if under 8500 lbs. GVWR; and do not exceed 30% of fleet on 9/1/98)</p> <p>Transits: 30% of fleet by 9/1/94 50% of fleet by 9/1/96</p> <p>(100% purchase requirement under TTC)</p> <p>(Acquisitions prior to 9/1/98 may be used for compliance if they: operate on specified fuels; meet or exceed Tier I standards if under 8500 lbs. GVWR; and do not exceed 30% of fleet on 9/1/98)</p> <p>State: 30% of fleet by 9/1/94 50% of fleet by 9/1/96</p>	<p>Private and Local Government: 10% of total fleet by 9/1/98 or 30% of purchases after 9/1/98 50% of purchases after 9/1/00 70% of light-duty purchases after 9/1/02 50% of HD purchases after 9/1/02</p> <p>(Acquisitions or conversions by private and local government fleets prior to 9/1/95 may be used for compliance if they operate on a fuel required by any state fuel or fleet program prior to 9/1/95)</p> <p>Transits: 50% of total fleet under HSC.</p> <p>(100% purchase requirement under TTC)</p> <p>(Acquisitions by transit fleets prior to 9/1/99 for transit fleets may be used for compliance if they: operate on a fuel required by any state fuel or fleet program prior to 9/1/95 and meet or exceed the Tier I standards if under 8500 lbs. GVWR)</p> <p>State: 50% of fleet by 9/1/96</p>
Exceptions	No exceptions.	Lack of refueling or equipment, insufficient financing, fixed price contract, not cost-effective over the life of the vehicle.	Lack of refueling, insufficient financing, fixed price contract, not cost-effective over the life of the vehicle, LEVs not available from original equipment manufacturers or conversions.
Program Delays	Yes , if no LEVs available for sale in California. [42 USC 7589c)]; Delayed until MY 1999.	No.	No.
Vehicle class	All Covered Fleets: vehicles ≤ 26,000 lbs. GVWR.	Private and Local government: vehicles ≤ 26,000 lbs., GVWR Transit: all vehicles State: all vehicles	Private, Local government and Transit: vehicles ≤ 26,000 lbs., GVWR State: all vehicles

Issues	Federal Clean Fuel Fleet Program	TCF Program under SB 200 (as enacted by the 74th Legislature, 1995)	TCF Program under SB 681 (as enacted by the 75th Legislature, 1997)
Fuel Type	All Covered Fleets: Any fuel or power source which allows the vehicle to meet LEV standards.	Private, Local government and Transit: Any fuel or power source which allows the vehicle to meet LEV standards. State: CNG, LNG, LPG, M85, E85, or electricity.	Private, Local government and Transit: Any fuel or power source which allows the vehicle to meet LEV standards. State: CNG, LNG, LPG, M85, E85, or electricity.
Exempted Vehicles	All Covered Fleets: Vehicles weighing more than 26,000 lbs. GVWR; public leased or rented vehicles; vehicles for sale by dealers; law enforcement; emergency; non-road; garaged at personal residences; and vehicles used for original equipment manufacturer testing.	All Covered Fleets: Emergency, law enforcement; Private, Local government and Transit: Garaged at residence; garaged at residence and not returned to central location; vehicles > 26,000 lbs. GVWR [except transits]	All Covered Fleets: Emergency, law enforcement, vehicles used in the maintenance or repair of underground mass transit facilities that are required by federal law or regulation to operate on diesel fuel, school buses. Private, Local government and Transit: Garaged at residence; vehicles > 26,000 lbs. GVWR
Credit Trading	Yes - All Covered Fleets: MERCs	Yes - All Covered Fleets: MERCs and PCCs	Yes- Private, Local government and Transit: MERCs and PCCs State: MERCs