

**State Implementation Plan Revision**  
**For Substitution of the Federal Clean Fuel Fleet Program**

**Texas Natural Resource Conservation Commission**  
**Office of Air Quality**  
**Mobile Source Division**  
**Technology and Fuels Section**

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## I. INTRODUCTION

### I.1. Background<sup>1</sup>

The Texas Natural Resource Conservation Commission (TNRCC) is required under federal and state mandates to develop an alternative fuels program which will reduce mobile source emissions. The 1990 Federal Clean Air Act (FCAA) Amendments required states to either adopt the Federal Clean Fuel Fleet (FCFF) Program or implement a program which demonstrates equivalent emission reductions to the FCFF Program. The State of Texas, in a committal State Implementation Plan (SIP) revision submitted to the U.S. Environmental Protection Agency (EPA) on November 15, 1992, proposed to opt-out of the FCFF Program in order to implement the Texas Alternative Fuel Fleet (TAFF) Program.

The FCFF Program requires federal, state, and local governments, and private fleets in the serious, severe, or extreme ozone and carbon monoxide (CO) nonattainment areas (NAAs) to convert their fleets to clean fuel vehicles. In Texas, three NAAs would have been affected by the FCFF Program; Houston/Galveston, Beaumont/Port Arthur, and El Paso. The federal program mandates increasing percentages of clean fuel vehicle purchases by the affected fleets in the covered NAAs in 1998, 1999, and 2000. The clean fuels are defined under the FCFF as any fuel or power source that enables a vehicle to comply with the clean fuel vehicle standards. These

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<sup>1</sup> Definitions and acronyms are provided in the appendices.

clean fuels currently include methanol and ethanol containing 85% or more alcohol by volume, reformulated gasoline, diesel, natural gas, liquified petroleum gas (LPG), hydrogen, and electricity.

The Texas Legislature, in 1989, passed Senate Bills 740 and 769 which established the Texas Alternative Fuels Program (TAFP). The TAFP is focused on reducing the use of petroleum based fuels such as gasoline and diesel, decreasing mobile source emissions, and benefitting the Texas economy. Therefore, the program includes only those fuels which are defined as being "alternatives" to the traditional fuels of gasoline and diesel. These fuels include natural gas, LPG, methanol, ethanol, and electricity. The TAFP covers certain transit systems, state agency fleets, and school bus fleets both in and out of the four NAAs. Effective September 1, 1991, affected fleets were required to purchase alternatively fueled vehicles (AFVs) and/or convert existing vehicles to use alternative fuels in order to meet the fleet requirements as outlined in the TAFP schedule.

The TAFP Program retains key provisions of the current TAFP while incorporating some aspects of the FCFE Program. The covered fleets include private, federal and local government fleets, and school districts operated within a serious, severe, or extreme NAA. All vehicles acquired by these fleets after September 1, 1998 must meet, at a minimum, the Low Emission Vehicle (LEV) emission standards. All fleets not already covered by the TAFP shall be allowed to satisfy the acquisition requirements using approved alternative fuels, reformulated gasoline or diesel fuel. As an alternative, these fleets may follow a prescribed compliance schedule.

## I.2. Comparison of the Fleet Programs

Table I-1. Comparison of Fleet Programs

Issue	Federal Clean Fuel Fleet Program	Texas Alternative Fuel Fleet Program
Approved Fuels	Any fuel that meets emissions standards of section 243, of the Federal Clean Air Act Amendments.	Approved alternative fuels include: natural gas, liquified petroleum gas, methanol, ethanol, and electricity. Reformulated gasoline or diesel fuel may also be used for compliance purposes by certain fleets.
Clean fuel use	Required while operating within NAAs.	Required 75% of the time while operating in the NAA.
Emission standards	Low-emission vehicle (LEV) required. Ultra-low emission vehicle (ULEV), Inherently low emission vehicle (ILEV), and Zero-emission vehicle (ZEV) can earn credits.	Same
Fleet applicability and size	Private, federal, state, and local government. All fleets of 10 or more centrally fueled (or capable of being centrally fueled) vehicles.	Private, federal, state and local government fleets. All fleets of 15 or more registered in or located within the covered NAAs and all fleets with 15 or more vehicles located outside the covered NAAs that operate more than 50% of their time within the covered NAAs.
Vehicle class	Light-duty vehicle (LDV), Light-duty truck (LDT) $\leq$ 8,500 lbs., heavy-duty truck (HDT) 8,500 to 26,000 lbs gross vehicle weight rating (GVWR)	Same.
Exemptions	Rental, law enforcement, off-road, emergency, dealer, test, national security, and garaged at personal residence.	Off-road, rental, emergency, law enforcement, national security, and vehicles offered for sale at licensed dealerships.
Area applicability	Nationwide, the 22 serious, severe, and extreme NAAs with 1980 population > 250,000.	The serious, severe and extreme ozone and/or CO NAAs with 1980 population > 250,000 in Texas these include: Houston/Galveston, Beaumont/Port Arthur, and El Paso.
Phase-in requirements	LDV, LDT: 30% of acquisitions in 1998 50% of acquisitions in 1999 70% of acquisitions in 2000+  HDV: 50% of acquisitions in 1998, 1999, 2000	100% LEV purchase requirement after 9/1/1998;  *Optional compliance alternative:  30% of fleet at LEV standard by 9/1/1998 50% of fleet at LEV standard by 9/1/2000 90% of fleet at LEV standard by 9/1/2002+
Credit value	Depends on additional emission reductions from purchase of additional vehicles over requirement, early purchases, purchases of vehicles which meet more stringent emission standards, and acquisition of exempt vehicles which operate on alternative fuels.	Same.
Credit trading	Applicable to LDVs and LDTs and HDVs. Within the same NAA only. Credits may be banked.	Same.
Program incentives	Transportation control measures (TCM) exemptions to encourage purchases of AFVs beyond the requirement.	Allows trading of MERCs for compliance purposes

\* Up to 30% of vehicles counted toward the optional compliance alternative may be grandfathered even if they do not meet the LEV standard as long as they meet the Tier I standard, were acquired before September 1, 1998, and are capable of using TNRCC approved alternative fuels.

### I.3. Statutory Authority

The TAFP is codified as Subchapter F, 382.131 et. seq., Health and Safety Code (Texas Clean Air Act {TCAA}). Subchapter F provides broad powers for the TNRCC to establish programs that require the use of alternative fuels. This is consistent with the philosophy of the Texas Legislature, as set out in Section 382.0171, that "In adopting rules, the Commission shall encourage and may allow the use of natural gas and other alternative fuels, as well as select-use technologies, that will reduce air emissions."

Statutory authority for the TAFP is found in the TCAA, Title 5, Section 382.001 et. seq. Health and Safety Code. Under Section 382.011, the TNRCC is given "the powers necessary or convenient to carry out its responsibilities" to establish and maintain air quality standards. The TNRCC also has broad authority to adopt and enforce rules pursuant to Section 382.017.

Under the TAFP Program, the use of TNRCC-approved alternative fuels will reduce tailpipe emissions to allow vehicles to attain at a minimum the federal LEV standards. The FCAA Amendments of 1990 clearly indicate that it is beneficial, and in some areas absolutely necessary, for certain vehicles to achieve the LEV standard through the use of clean fuels in order to bring areas into attainment with federal ambient air quality standards.

#### **I.4. SIP Development Schedule**

January 21, 1994 Commission's review of the SIP and rule proposal

February 11, 1994 Publication of the hearing notice, TAFF document, and rules to the Texas Register

February 28, 1994 Public hearing in Houston

March 1, 1994 Public hearings in Beaumont and Austin

March 2, 1994 Public hearing in El Paso

June 28, 1994 Chief Clerk's Office

July 6, 1994 Adoption by the TNRCC

July 15, 1994 Final submission of SIP revision to EPA

#### **II. PROGRAM IMPLEMENTATION**

##### **II.1. Fuel Requirements**

All fleets affected by the alternative fuel requirements of the TAFF Program shall use the following alternative fuels:

- (1) Compressed and liquified natural gas;
- (2) LPG;
- (3) Methanol or methanol/gasoline blends of 85% (M85) or greater;
- (4) Ethanol or ethanol/gasoline blends of 85% (E85) or greater;  
or
- (5) Electricity.

The TNRCC will allow any certified vehicle/fuel technology that meets, at a minimum, the LEV standards to be used for compliance purposes by private, local government, federal, and school district vehicles not already subject to alternative fuel requirements under the state legislation. The purpose of allowing reformulated gasoline and diesel to be used by these fleets is to provide greater flexibility for affected fleets to comply with the TAFP Program while still providing emission reductions.

The TNRCC may consider approving other fuels upon the receipt of a petition with supporting documentation requesting a specific fuel be added to the list of approved alternative fuels. The TNRCC staff will review the submitted documentation and other available information and determine if sufficient evidence exists to warrant

further consideration of the petition. If the TNRCC determines that a fuel meets the requirements of state and federal legislation and will reduce emissions from motor vehicles, then a revision to the regulations will be proposed. Once the revision has been proposed, the TNRCC must conduct public hearings and receive written testimony before the final adoption of the proposed regulations.

## **II.2. Geographic Coverage**

The TAFF Program is required in all serious, severe, and extreme ozone NAAs with a 1980 population of 250,000 or more. The program is also required in all CO NAAs with a 1980 population of 250,000 or more and a design value of 16.0 or greater parts per million CO, based on data for calendar years 1988 and 1989. The current Texas NAAs covered by the TAFF Program include:

- (1) El Paso: El Paso County;
- (2) Beaumont/Port Arthur: Hardin, Orange, and Jefferson Counties; and
- (3) Houston/Galveston: Harris, Galveston, Brazoria, Waller, Chambers, Liberty, Montgomery, and Fort Bend Counties.

### **II.3. Fleet Coverage**

All fleets with 15 or more vehicles which are registered in or located within the covered NAAs and all fleets located outside the covered NAAs with 15 or more vehicles that operate 50% or more of their time within the NAAs will be affected by the provisions of the TAFF Program. The inclusion of private, federal, and local government fleets will be restricted to the covered NAAs and fleets located outside the NAAs, but operating primarily within the NAAs.

### **II.4. Compliance Requirements**

Private, local, and federal government fleets with 15 or more vehicles and school district fleets with 15 or more, but less than 50 vehicles (not covered by existing state legislation) located in the serious, severe, and extreme NAAs shall comply with all requirements of the TAFF Program. Fleets may choose one of the following two options in order to comply with the TAFF Program.

- A. Beginning September 1, 1998 all vehicles purchased, leased, or otherwise acquired by fleets must meet or exceed the LEV standards; or
  
- B. All fleet vehicles must meet or exceed the LEV standard according to the following schedule:

- (1) 30% of fleet vehicles by September 1, 1998;
- (2) 50% of fleet vehicles by September 1, 2000; and
- (3) 90% of fleet vehicles by September 1, 2002 and thereafter.

The TNRCC will allow the use of vehicles that were converted, leased, purchased, or otherwise acquired before September 1, 1998 to comply with the fleet percentage requirements, provided that they are capable of operating on a TNRCC-approved alternative fuel and meet at least the Tier I emission standards. However, no more than 30% of these fleet vehicles considered under this provision may be used for compliance purposes after September 1, 1998. The purpose of this provision is to allow fleet owners/operators the flexibility of using vehicles that have already been converted to operate on alternative fuel to comply with the TAFF Program, while ensuring equivalency with the federal program.

### **III. EMISSION STANDARDS**

Fleet owners affected by this program will be required to ensure their fleet vehicles meet or exceed the appropriate standards. The standards are based on the following vehicle categories:

- (1) Light-duty vehicles (LDVs) and light-duty Trucks (LDTs) under 6,000 lbs. gross vehicle weight rating (GVWR);
- (2) LDTs between 6,001 lbs. and 8,500 lbs. GVWR; and
- (3) Heavy Duty Vehicles (HDVs) between 8,501 lbs. and 26,000 lbs. GVWR.

### **III.1. Emission Standards for LDVs and Trucks:**

Tables III.1 and III.2 present the emission standards for LDV categories.

**Table III.1**  
**Emission Standards for LDVs and Trucks, in Grams per Mile.**

VEHICLE WEIGHT CLASS		EXHAUST EMISSION STANDARDS in grams/mile									
		NMOG		CO		NO <sub>x</sub>		PM		HCHO	
		LEV	ULEV	LEV	ULEV	LEV	ULEV	LEV	ULEV	LEV	ULEV
50,000 Miles	Light-duty vehicles and trucks ≤3,750 lbs. TW (≤6,000 lbs. GVWR)	0.075	0.040	3.4	1.7	0.2	0.20	0.08	0.08	0.015	0.008
	Light-duty trucks >3,750 lbs. and ≤5,750 lbs. TW (≤6,000 lbs. GVWR)	0.100	0.050	4.4	2.2	0.4	0.40	0.08	0.08	0.018	0.009
	Light-duty trucks ≤3,750 lbs. TW (>6,000 lbs. GVWR)	0.125	0.075	3.4	1.7	0.4	0.20	n/a	n/a	0.015	0.008
	Light-duty trucks >3,750 lbs. and ≤5,750 lbs. TW (>6,000 lbs. GVWR)	0.160	0.100	4.4	2.2	0.7	0.40	n/a	n/a	0.018	0.009
	Light-duty trucks >5,750 lbs. and ≤8500 lbs. TW (>6,000 lbs. GVWR)	0.195	0.117	5.0	2.5	1.1	0.60	n/a	n/a	0.022	0.011
100,000 Miles	Light duty vehicles and trucks ≤3,750 lbs. TW (≤6,000 lbs. GVWR)	0.090	0.055	4.2	2.1	0.3	0.30	0.08	0.04	0.018	0.011
	Light-Duty trucks >3,750 lbs. and ≤5,750 lbs. TW (≤6,000 lbs. GVWR)	0.130	0.070	5.5	2.8	0.5	0.50	0.08	0.04	0.023	0.013
	Light-duty trucks ≤3,750 lbs. TW (>6,000 lbs. GVWR)	0.180	0.107	5.0	2.5	0.6	0.30	0.08	0.04	0.022	0.012
	Light-duty trucks >3,750 lbs. and ≤5,750 lbs. TW (>6,000 lbs. GVWR)	0.230	0.143	6.4	3.2	1.0	0.50	0.10	0.05	0.027	0.013
	Light-duty trucks >5,750 lbs. and ≤8500 lbs. TW (>6,000 lbs. GVWR)	0.280	0.167	7.3	3.7	1.5	0.80	0.12	0.06	0.032	0.016

\* ILEV standards equal LEV standards for NMOG and CO; and ULEV standards for NO<sub>x</sub>. In addition, ILEV standards require evaporative emissions of no more than 5 grams per test with the vapor recovery system disconnected.

- CO - carbon monoxide
- GVWR - gross vehicle weight rating (GVWR=TW+load capacity)
- HCHO - formaldehyde
- NMOG - non-methane organic gas
- NO<sub>x</sub> - oxides of nitrogen
- PM - particulate matter
- TW - total weight
- ULEV - ultra-low emission vehicle

**Table III.2 Exhaust Emission Standards for Dual-Fueled and Flexible-Fueled Vehicles**

VEHICLE WEIGHT CLASS		NMOG Exhaust Emission Standards for Flexible and Dual-Fueled (grams/mile)	
		When Operating on Clean Alternative Fuel	When Operating on Conventional Fuel
50,000 Miles	Light-duty vehicles and trucks $\leq 3,750$ lbs. TW ( $\leq 6,000$ lbs. GVWR)	0.075	0.125
	Light-duty trucks $> 3,750$ lbs. and $\leq 5,750$ lbs. TW ( $\leq 6,000$ lbs. GVWR)	0.100	0.160
	Light-duty trucks $\leq 3,750$ lbs. TW ( $> 6,000$ lbs. GVWR)	0.125	0.25
	Light-duty trucks $> 3,750$ lbs. and $\leq 5,750$ lbs. TW ( $> 6,000$ lbs. GVWR)	0.160	0.32
	Light-duty trucks $> 5,750$ lbs. and $\leq 8500$ lbs. TW ( $> 6,000$ lbs. GVWR)	0.195	0.39
100,000 Miles	Light-duty vehicles and trucks $\leq 3,750$ lbs. TW ( $\leq 6,000$ lbs. GVWR)	0.090	0.156
	Light-duty trucks $> 3,750$ lbs. and $\leq 5,750$ lbs. TW ( $\leq 6,000$ lbs. GVWR)	0.130	0.200
	Light-duty trucks $\leq 3,750$ lbs. TW ( $> 6,000$ lbs. GVWR)	0.180	0.36
	Light-duty trucks $> 3,750$ lbs. and $\leq 5,750$ lbs. TW ( $> 6,000$ lbs. GVWR)	0.230	0.46
	Light-duty trucks $> 5,750$ lbs. and $\leq 8500$ lbs. TW ( $> 6,000$ lbs. GVWR)	0.280	0.56

**III.3. LEVs**

Light-duty LEVs provide greater emission reduction benefits over the current standards for tailpipe emissions of non-methane hydrocarbon (NMHC), CO, and nitrogen oxide (NO<sub>x</sub>). The TNRCC will adopt the EPA combined 3.8 NMHC+NO<sub>x</sub>g/Bhp-hr LEV emission standard for HDVs found in 40 Code of Federal Regulations (CFR) Part 88.

These vehicles would, as specified by Section 242(b) of the FCAA, also be required to meet all other applicable emission standards and requirements for CO, particulate matter, smoke, and evaporative emissions for the model year during which they are certified/produced. The EPA has finalized emission standards for HDVs. The HDV emission standards may be found in 40 CFR Part 88.

#### III.4. Additional Emission Standards

The ultra-low emission vehicle (ULEV), inherently low emission vehicle (ILEV), and zero emission vehicle (ZEV) standards will further reduce emissions beyond the current Tier I or LEV standards. These standards may be used for compliance purposes and for the generation of mobile emission reduction credits (MERCs).

The light-duty ULEV emission standards are more stringent than the LEV standards. The reduction in emissions over the LEV standard is attributed to reduced non-methane organic gas (NMOG), CO, and NO<sub>x</sub> emissions through improved emission control hardware and evaporative emission control devices. The heavy-duty combined NMHC+NO<sub>x</sub> ULEV standard is found in 40 CFR Part 88.

Light-duty ILEVs further reduce the ozone precursor emissions through evaporative emission reductions and NO<sub>x</sub> reductions. Therefore, as a requirement, ILEVs must pass additional evaporative emission control measures. The standard established by EPA for

evaporative emissions applicable to ILEVs is 5.0 grams per test with the evaporative control system disconnected. Light-duty ILEVs must meet the LEV exhaust standards for NMOG and CO, and the ULEV exhaust standard for NO<sub>x</sub>. Heavy-duty ILEV vehicle emission standards are found in 40 CFR part 88. These vehicles will also be required to pass additional evaporative emission control measures.

Light-duty ZEVs are defined as vehicles that have no exhaust or evaporative emissions of any regulated pollutant. At present, only battery-powered vehicles are expected to be able to qualify as ZEVs. Heavy-duty ZEVs also have no exhaust or evaporative emissions of any regulated pollutant. The use of heavy-duty ZEVs is voluntary and these vehicles may be used for compliance with the TAFF and generate MERCs. The heavy-duty ZEV standards are found in 40 CFR Part 88.

#### **IV. TECHNOLOGY REQUIREMENTS**

All vehicles used for compliance with the TAFF Program must have emissions certification from EPA, and in the case of grandfathered vehicles used for compliance, the California Air Resources Board (CARB) certification is also acceptable.

#### IV.1. Alternative Fuel System Guidelines

Fuel system changes to vehicles that have been certified as meeting an applicable emission standard are subject to the tampering prohibitions of FCAA Section 203(a)(3). In order to allow vehicle fuel system changes, EPA and the TNRCC established policies for the enforcement of the tampering prohibitions and conversions of vehicles. The EPA guidelines are contained in the EPA documents 40 CFR Part 88 "Clean Fuel Fleet Emission Standards, Conversions, and General Provisions and Amended Heavy-Duty Averaging, Banking, and Trading Credit Accounting Regulation," and 40 CFR Parts 80, 85, 86, 88, and 600 "Standards for Emissions From Natural Gas-Fueled, and Liquefied Petroleum Gas-Fueled Motor Vehicles and Motor Vehicle Engines, and Certification Procedures for Aftermarket Conversions."

Section 203(a) of the 1990 FCAA Amendments provides an exception to the tampering provisions of Section 203(a)(3) of the FCAA. The 1990 FCAA Amendments, under Section 246(d), also exempt fuel system changes of conventional vehicles to clean-fuel vehicles from tampering liability if the changed vehicle complies with clean-fuel vehicle standards. The TNRCC, in administering the TAFF Program, will rely on this authority/statute. The TNRCC will also rely on EPA certification procedures for AFVs. Certification of alternative fuel systems should follow all applicable EPA Guidelines some of which are found in 40 CFR 80, 85, 86, 88, and 600. In addition, the following policies will apply:

- (1) Alternative fuel systems shall include all of the hardware necessary to allow a vehicle or engine to operate on an alternative fuel other than the fuel for which the vehicle or engine was originally manufactured;
- (2) For dedicated original equipment manufacturer (OEM) systems, certification should entail performing the applicable emission test procedures and meeting all emission standards and related provisions which apply to a new vehicle/engine operating on alternative fuel at the time of manufacture;
- (4) For dual-fuel or flexible-fuel systems, a certified vehicle will be required to meet or exceed the LEV standard while operating on either fuel;
- (5) Any installation on a vehicle of a noncertified alternative fuel system will not be recognized by the TNRCC and shall be considered tampering under the TAFF Program;
- (6) Installers must obtain certificates of conformity for all alternative fuel systems. Installers must follow guidelines found in EPA's full certification procedure or EPA's Small Volume Manufacturers Certification Program;
- (7) Upon receipt of a certificate of conformity, the installer and the system manufacturer shall be considered as one

entity for the purposes of warranty responsibilities under Section 206(a) of the FCAA, 40 U.S.C. §7525(a), 207 and related enforcement provisions of the 1990 FCAA Amendments;

- (8) The manufacturer/installer of the alternative fuel systems shall be responsible for any emissions-related failure caused by a problem in the design, manufacture, or installation of the system over the useful life of the vehicle.

**Certification:** The TNRCC will rely on the two EPA emission certification procedures for the identification of all alternative fuel and reformulated gasoline and diesel clean fuel fleet vehicles (CFFV) systems. A description of the two procedures may be found in the CFR. The EPA's full certification program is in 40 CFR 86.094-23 and the small volume manufacturers certification program is located in 40 CFR 86.092-14.

## **V. MONITORING**

### **V.1. Reporting and Recordkeeping**

The TNRCC staff will collect fleet data from fleet owners and operators in order to determine air quality benefits from the use of AFVs or any other reduced emission vehicles designated for compliance with the TAFF Program. The data will be used to monitor

fleet compliance, to calculate emission reductions, and to determine the program's effectiveness.

## V.2. Reporting

(1) Beginning September 1, 1994, for transit fleets and beginning September 1, 1996, for all other affected fleet owners shall submit an annual report to the TNRCC's Technology and Fuels Section. These reports will provide, at least, the following information:

- a. The company name, mailing address, telephone/FAX number;
- b. Name, title, mailing address, and telephone number of the person responsible for the local management of the affected fleet vehicles;
- c. Year, make, model, vehicle identification number (VIN), fuel type(s) and certified emission standard of each vehicle currently in the fleet;
- d. Whether the vehicle is dedicated, flexible-fueled, dual-fueled, or bi-fueled;
- e. If the vehicle is an AFV but not dedicated, documentation demonstrating the vehicle has operated at least 75% of

the time on an alternative fuel while operating in the covered NAA; and

- f. The number, types, and emission standards of all vehicles projected to be required by the fleet during the next reporting period in order to comply with the TAFF provisions.
- (2) All fleet owners will submit the information referenced in the Reporting section (1) (a) through (f) and any other applicable sections to the TNRCC in a format agreed to by the TNRCC, or on three and one-half inch floppy computer diskettes in one of the following computer formats:
- a. ASCII, comma-delimited, text files;
  - b. Paradox® or dBase® data base files; or
  - c. Lotus 123® or Quattro Pro® spreadsheet files.

### **V.3. Recordkeeping**

- (1) Fleet operators must maintain the information listed in the Reporting section (1) (a) through (f) as well as the following on-site records for enforcement purposes:

- a. Written documentation verifying that each vehicle satisfies the required emission standards; replacement of lost, stolen, or otherwise missing emission certifications shall be the responsibility of the fleet manager;
- b. Name, address, and telephone number of the manufacturer or installer of the alternative fuel systems; and
- c. Vehicle miles traveled, fuel consumed, maintenance and repair, and other records as may be necessary for determining air quality benefits from the use of alternative fuels.

#### **V.4. Inspection and Maintenance**

In order to ensure that all certified fleet vehicles meet the applicable emissions requirements, the TNRCC will adopt measures that require such vehicles to undergo vehicle emission inspection/maintenance (I/M) testing. The current I/M program, commencing in 1995, only covers gasoline powered vehicles. However, vehicles used to meet the compliance schedule through the use of reformulated gasoline must undergo emissions testing. By 1998 the TNRCC intends to expand the program to include AFVs. The TNRCC may use the I/M reporting system to assist in tracking compliance with the TAFF Program. The TAFF Program will be guided

by the present I/M rules applicable to the gasoline powered vehicle, unless specified otherwise. Furthermore, no pressure and purge tests will be required for dedicated gaseous fuel vehicles. Pressure and purge tests are only required for vehicles with a nonpressurized tank.

**Fleet Compliance, Vehicle Recall, and Registration Denial:** The purpose of using the I/M program in the TAFF Program will be to ensure that vehicles are properly maintained and operated at their certified emission levels. AFVs can also be identified for recalls and dealer repairs through I/M testing. Any vehicle which fails the appropriate I/M test and is not repaired or waived will be prohibited from registering. Testing of AFVs will adhere to the appropriate I/M specifications required for each vehicle class and model year in effect at the time of the test.

**Flexible and Dual-Fuel I/M Testing:** The I/M testing should include a record of fuel types. Although specific testing procedures and requirements have not yet been established, gaseous and alcohol powered vehicles should undergo testing specified for those types of vehicles. Flexible-fueled and dual-fueled vehicles may require special emissions tests. For example, dual-fuel vehicles will require emission tests for each fuel type. To offset the inconvenience of special emission tests for flexible-fueled and dual-fueled vehicles, the revised I/M program will have special testing lanes for fleet vehicles.

Bi-fueled diesel engines that use natural gas or propane present difficulties for I/M testing facilities because particulate matter in the exhaust can clog the exhaust gas analyzers. Therefore, such bi-fueled diesel engines will be exempt from the I/M testing requirements until the diesel opacity I/M program is implemented.

## **VI. ENFORCEMENT**

### **VI.1. Enforcement Authority**

The TCAA, in Section 382.011, provides the TNRCC with broad enforcement powers. The Executive Director is charged with the duty to enforce the TCAA, the rules promulgated under the TCAA, and orders of the Commission.

The Enforcement Rules of the TNRCC provide for enforcement through administrative proceedings, civil lawsuits, and criminal proceedings. Through administrative proceedings, the TNRCC can impose orders to achieve compliance accompanied by penalties of up to \$10,000 per day per violation. The TNRCC may also pursue civil legal proceedings through the Office of the Attorney General. Fines of up to \$25,000 per day per violation, injunctions, court orders, and cost of litigation can be assessed in a civil action under the TCAA. Criminal enforcement may also be initiated through the Attorney General, with fines of up to \$500,000 and imprisonment of up to 10 years as possible penalties.

In addition to the general penalty provisions, the rules of the TNRCC require the denial of marketable credits in certain situations. Violation of the TAFF Program rules may also result in denial of emission reduction credits.

**Specific Enforcement Items:**

- (1) Enforcement of the emission standards and AFV fleet operating requirements will be done through financial penalties and/or credit denial. The fleet manager will be required to provide information regarding his/her fleet operation and periodic emissions testing.
- (2) Penalties will be imposed on fleet operators for tampering with the engine configuration and emission control systems, including exhaust components. The vehicle manufacturer, the alternative fuel system manufacturer, and the installer will be required to provide a warranty to the fleet operator which, in a proven tampering situation, will be subject to being declared void.
- (3) Vehicles will undergo periodic inspection to detect any tampering. In addition to potential voiding of the warranty, financial penalty, credit denial, and denial of vehicle registration are enforcement options.

- (4) The replacement of lost, stolen, or otherwise missing emission certification shall be the responsibility of the fleet manager.
  
- (5) Compliance with the fleet purchase or percentage requirements will be monitored by the TNRCC staff. Fleet operators must report to the TNRCC their compliance with the fleet requirements. Inadequate reporting, fraud, abuse, or other findings that jeopardize the integrity of the program will be liable for the full range of penalties discussed above.

## VII. EXEMPTIONS

Fleets and/or vehicles that are exempt will not be required to comply with the provisions of the TAFF Program. Exemptions will apply to only the following vehicles and/or fleets:

- (1) Off-road vehicles;
  
- (2) Rental agency vehicles offered for rent to the public;
  
- (3) Emergency vehicles as defined in the Texas Motor Vehicle Code;
  
- (4) Law enforcement vehicles;

(5) National security vehicles; or

(6) Vehicles offered for sale at licensed dealerships.

Fleet owner/operators with exempt vehicles must submit, and update as needed, documentation demonstrating that the vehicles qualify for one of the above exemptions.

#### **VIII. EQUIVALENCY DETERMINATION: EMISSION REDUCTION CALCULATIONS**

In accordance with EPA requirements, the TAFF Program must demonstrate equivalency to the FCFF Program in emission reductions. The TAFF Program was evaluated against the FCFF Program performance standard in accordance with the opt-out provisions discussed in the committal SIP. This equivalency determination is based on the proposed TAFF Program which required all fleets to meet the percentage requirements.

In addition, the TAFF Program requires beginning September 1, 1998 all vehicles purchased, leased, or otherwise acquired by fleet operators/owners to meet or exceed the LEV emission standards. Staff believes that this requirement will result in the addition of more vehicles into the fleet program meeting the LEV standard, and consequently resulting in a greater emission reduction than the FCFF Program. Although the initial fleet requirements as described in the earlier draft of the TAFF document satisfy the equivalency

determination as required by EPA, the incorporation of the 100% new purchase requirement is expected to achieve further reductions above the equivalency level.

This section summarizes the emission reduction estimates that demonstrate equivalency of the TAFF and FCFF programs. The TNRCC used the EPA emission reduction calculation method outlined in the May 1993 draft of EPA's "Regulatory Impact Analysis of the Clean Fuels Fleet Program." A detailed analysis of the calculation methods and emission reduction estimates are presented in Appendix C. The methodology adopted by the TNRCC was based on conservative assumptions regarding fleet data (i.e., fleet size, turnover rate, growth rate, annual VMT accrual) and emission factors. These assumptions were derived from studies prepared for the TNRCC by various consultants and by in-house staff.

Hydrocarbon (HC), NO<sub>x</sub>, and CO emission reduction calculations were performed separately for the three covered NAAs: Beaumont/Port Arthur, Houston/Galveston, and El Paso.

Based on previous assumptions, the TAFF Program will result in at least 2,518 more light-duty LEVs than the FCFF Program in 1998. By the year 2010, the TAFF will exceed the FCFF by 29,356 light-duty LEVs due to the percentage of fleet requirements. Table VIII-1 and Figure VIII-1 compare the total number of LEVs required by the TAFF

and FCFF Programs. The adopted program is expected to include a greater number than these previous estimates.

The implementation of the TAFF Program will reduce LDV NMHC emissions approximately 954 tons more than the FCFF Program from 1998 through 2010 (see figure VIII-2). The NO<sub>x</sub> and CO emissions will be reduced by 2,301 tons and 15,510 tons more than the FCFF, respectively. Based on this analysis, the TNRCC has determined that the TAFF Program has greater emission reductions than the FCFF Program.

**TABLE VIII-1. Comparison of Total Light-Duty LEVs Required Under FCFF and TAFF**

Total Light-Duty LEV Vehicles and Trucks		
YEAR	FCFF	TAFF
1998	11,330	13,848
1999	30,629	35,744
2000	58,242	58,158
2001	75,132	83,212
2002	84,675	109,340
2003	86,538	111,746
2004	88,442	114,204
2005	90,388	116,717
2006	92,376	119,285
2007	94,408	121,909
2008	96,485	124,591
2009	98,608	127,332
2010	100,777	130,133

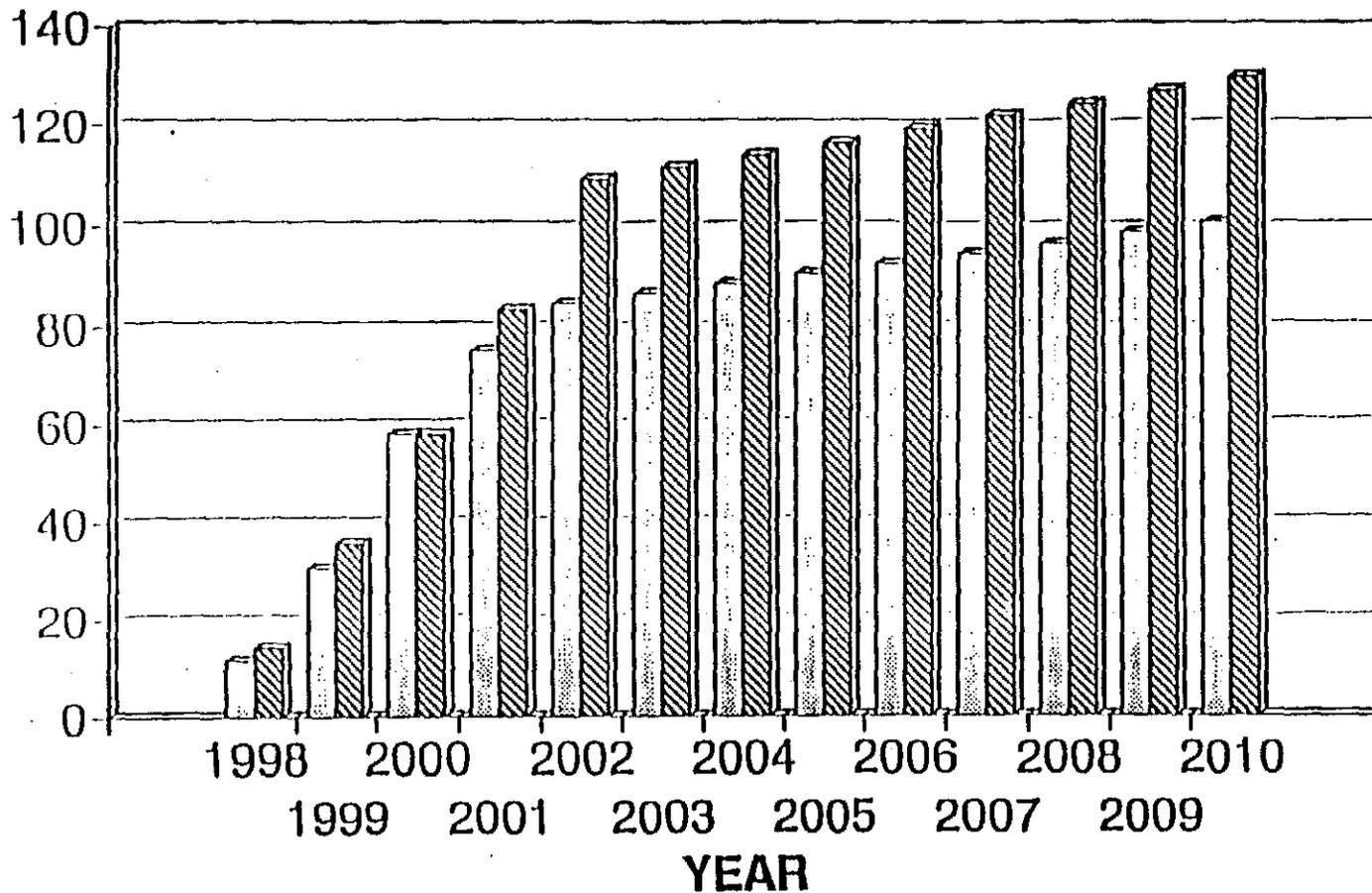
# TOTAL FCFF AND TAFF LEV COMPARISON

## Light-duty Vehicles and Trucks

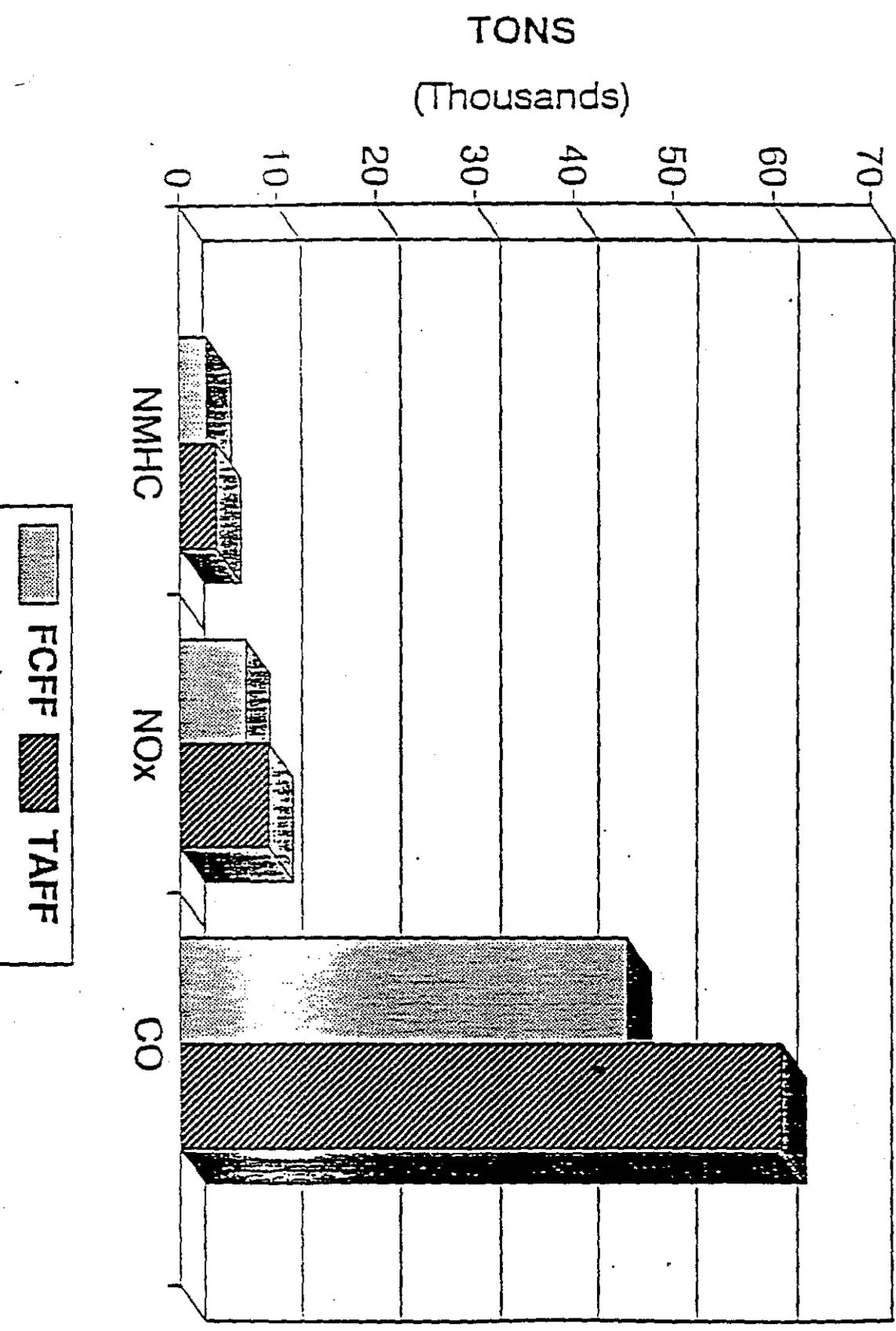
Figure VIII-1  
Comparison of Light-Duty LEVs Required by TAFF and FCFF Programs

VEHICLES

(Thousands)



# TOTAL EMISSION REDUCTION COMPARISON 1998 - 2010



## **IX. TRADING OF MOBILE EMISSION REDUCTION CREDITS**

The trading provision of the TAFF Program provides an administrative mechanism for the review of emission reduction credits generated from the use of vehicles that exceed the LEV standard. This section is intended to promote cost-efficient compliance with the Texas fleet mandates and to encourage the greater use of vehicles which reduce emissions. Fleets can generate MERCS at any time after September 1, 1994.

### **IX.1. General Methodology and Uses**

Fleet operators affected by the TAFF Program or those that voluntarily participate in the program may generate MERCS. MERCS can be generated by:

- (1) The use, conversion, purchase, or acquisition of more vehicles than required by the fleet percentage requirements;
- (2) The acquisition of exempted or non-mandated vehicles which exceed the LEV standards; or
- (3) The acquisition of vehicles certified to an emission standard more stringent than the LEV standard.

Credits may be used either to comply with provisions of the TAFP Program to offset emissions from other sources (such as stationary and area) or to satisfy other emission reduction requirements that the TNRCC deems appropriate. Credits may only be traded, sold, or transferred for use within the same NAA.

## IX.2. MERC Calculation

**MERC Generation:** As mentioned previously, MERCs can be generated in three ways. The following calculation methodologies have been prescribed to encompass the generation of MERCs from vehicles that exceed the LEV standards.

- (1) Purchase or acquisition of any additional or exempt vehicles that meet or exceed the LEV standards:

$$MERC_{\text{grams/year}} = \frac{(\text{additional vehicle benefit} * VMT * CF)}{n}$$

Additional vehicle benefit = the in-use emissions difference between the emission certification standard of the conventionally fueled baseline vehicle and certified emissions standard of the additional or exempt vehicle.

VMT = Estimated total remaining VMT.

CF = Conversion Factor for heavy-duty vehicles only is brake specific fuel consumption x fuel economy x fuel density.

n = Estimated fleet life of the vehicle measured in years.

- (2) Acquisition of vehicles which meet TNRCC approved standards more stringent than the LEV standards:

$$MERC_{\text{grams/year}} = \frac{(\text{cleaner vehicle benefit} * \text{VMT} * \text{CF})}{n}$$

Cleaner vehicle benefit = the in-use emissions rate difference between the LEV standards and the standards to which the vehicle is actually certified.

VMT = Estimated total remaining Vehicle Miles to be Traveled.

CF = Conversion Factor for heavy-duty vehicles only is brake specific fuel consumption x fuel economy x fuel density.

n = Estimated fleet life of the vehicle measured in years.

- (3) Acquisition of a vehicle with certified levels of evaporative emissions less than five grams per test.

$$MERC_{\text{grams/year}} = \frac{(\text{vapor improvement} * \text{VMT})}{n}$$

Vapor improvement = In-use evaporative emissions rate difference between conventional and low vapor emission vehicles calculated using the most recently approved EPA mobile emissions model adjusted for area specific factors.

VMT = Estimated total remaining VMT.

n = Estimated fleet life of the vehicle measured in years.

**Uses of MERCs:**

- (1) MERCs may be used to reduce the number of vehicles otherwise required to comply with the TAFF Program, and
- (2) MERCs may be used to achieve compliance as described in §115 (Volatile Organic Compound {VOC} reductions) and §117.540 (NO<sub>x</sub> reductions) and as offsets as specified in the Emissions Banking Rule §101.29.

**IX.3. Administrative Requirements**

**MERC Registration:** Fleets proposing to generate MERCs pursuant to this section shall submit an application on approved forms provided

by the TNRCC within six months of achieving the actual emissions reduction. The application must consist of at least the following information for each vehicle generating a credit:

- (1) A demonstration of actual emissions reduction through the submission of copies of the vehicle emissions certification;
- (2) The number of remaining VMTs by each vehicle generating a MERC; and
- (3) The number of years the vehicle will be counted as a fleet vehicle;

The annual number of emissions reductions claimed shall be clearly expressed.

MERC Certification: The TNRCC shall have 30 days from the date of receipt to determine if the registration application is complete. If the decision is to grant the MERCs as registered, the MERC certificate shall be mailed to the owner.

A written response will be sent to the applicant if the TNRCC decides to grant less credit than the deposit registration states or to deny certification. The applicant will then have 30 days to respond in writing to the TNRCC. If the TNRCC affirms the

certification decision, the applicant may appeal the decision as described by the Emissions Banking rule (30 TAC §101.29(1)(2)).

Emissions Banking of MERCs. Upon determination of MERC certification, the TNRCC shall issue a MERC certificate to the fleet owner/operator. The TNRCC will maintain a database containing the MERC information. Each MERC certificate shall contain:

- (1) Name of the owner;
- (2) MERC certificate identification number;
- (3) Date of issuance;
- (4) Total emissions reduction estimated from the vehicle;
- (5) Pollutant(s) reduced;
- (6) Time period for which the credit is valid (expressed in total remaining VMT and number of years);
- (7) Grams/year of emissions valid for consumption; and
- (8) Signature of the TNRCC official.

MERC Transfer/Withdrawal. The sale, transfer, or withdrawal of MERCs established under this section shall follow established protocols in §101.29 (1) and (m)(3). For each MERC sold, the following information shall be submitted and recorded in the TNRCC Emissions Bank:

- (1) Purchase price of the MERCs;
- (2) Name and location of the seller;
- (3) Name and location of the buyer; and
- (4) Creation and expiration date.

#### **X. Resources**

The Mobile Source Division of the TNRCC has gained substantial experience working with the regulated community and the providers of AFV technology and fuels under the auspices of the TAFP. Currently, with a budget of approximately \$550,000 for the fiscal year of 1994, eleven staff members will be dedicated to the TAFP Program. The TNRCC staff has collected data and established a fleet database necessary for the successful implementation of the TAFP Program.