



Summary and Analysis of the Highway Diesel Fuel 2003 Pre-compliance Reports

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Highway Diesel Fuel
2003 Pre-compliance Reports**

Assessment and Standards Division, Transportation and Regional Programs Division
Office of Transportation and Air Quality
Office of Air and Radiation
U.S. Environmental Protection Agency

NOTICE

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decision, position, or regulatory action.*

Executive Summary

Any refiner or importer planning to produce or import highway diesel fuel in 2006-10, is required to submit to the U.S. Environmental Protection Agency (EPA or the Agency) pre-compliance reports. These reports are due annually from June 2003 through 2005. They must contain estimates of the volumes of 15 parts-per-million (ppm) sulfur highway diesel fuel and 500 ppm sulfur diesel fuel that will be produced at each refinery or imported by each importer from June 2006 through May 2010. For those refineries planning to participate in the credit trading program, the reports must contain a projection of how many credits will be generated or used by each refinery. The pre-compliance reports must also contain information outlining each refinery's timeline for compliance with the 15 ppm sulfur standard and provide information regarding engineering plans (e.g., design and construction), the status of obtaining any necessary permits, and capital commitments for making the necessary modifications to produce 15 ppm sulfur highway diesel fuel.

We received pre-compliance reports and/or information for all refineries that produced highway diesel fuel in the year 2000. In addition to the reports that we received from current highway diesel fuel producers, we received reports from six refineries that did not produce highway diesel fuel in 2000 but indicated that they would shift into the highway diesel fuel market during the program's temporary compliance option (TCO) from June 2006 through May 2010.

We recognize that the highway diesel fuel 2003 pre-compliance reports reflect preliminary information as most refineries which are currently in the planning stage are expecting to make final decisions over the next several months. Our conclusions from these reports are based on this preliminary information. Future reports that we release (i.e., our summary and analysis of the pre-compliance reports for 2004 and 2005) will be based on the pre-compliance reports that are submitted in 2004 and 2005 and will therefore reflect new or updated information relative to the information that we received this year.

In general, the reports for 2003 indicate that 1) the industry is on target for complying with the 15 ppm sulfur standard on time, 2) highway diesel fuel production will be sufficient to meet demand, and 3) 15 ppm sulfur diesel fuel will be widely available nationwide.

Industry is On Target to Comply with the 15 ppm Sulfur Standard On Time

While the reported information is preliminary, the results likely provide the clearest snapshot of the highway diesel fuel market available at the present time. They represent the assessment of those who have first hand knowledge of the unique situation faced by each refinery. Furthermore, consistent with the expectations in the highway diesel fuel final rule¹ and EPA's 2002 Highway Diesel Progress Review,² most companies are in the planning stage now

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and expect to make final decisions before the first quarter of 2004. The reports also indicate that the compliance flexibility provisions (small refiner options, GPA option, general hardship provision) in the final rule will be used.

Highway Diesel Fuel Production Will Be Sufficient to Meet Demand

According to the reports, highway diesel fuel production will be sufficient in 2006 and beyond as refiners' plans are in line with projected growth in highway diesel fuel consumption. The pre-compliance reports project 2.9 million bbls/day (bbls/day) of highway diesel fuel production for 2006. In comparison, the highway diesel final rule projected a highway diesel fuel consumption of 2.6 million bbls/day for 2006, based on the Energy Information Administrations (EIA) Annual Energy Outlook (AEO) 2000. Projected highway diesel fuel consumption using EIA's AEO 2003 is around three million bbls/day. Based on this information, we conclude that refiners appear to be planning for the increased growth projected for the future. On a Petroleum Administrative Defense District (PADD) basis, increased production is projected in PADDs 2, 3, and 5, while slight decreases are projected in PADDs 1 and 4. These decreases, however, are dwarfed by the gains in PADDs 2, 3, and 5, and should be easy to offset through inter-PADD diesel fuel shipments.

15 ppm Sulfur Highway Diesel Fuel Will Be Available Nationwide

Finally, the reports show that 15 ppm sulfur highway diesel fuel will be widely available. On a volume basis, 96 percent of highway diesel fuel produced in 2006 is projected to meet the 15 ppm sulfur standard. On a refinery basis, over 90 percent of refineries/importers have stated that they plan to produce at least some 15 ppm diesel fuel. Given that the majority of highway diesel fuel is expected to meet the 15 ppm sulfur standard, a large credit volume is also expected. This will help to accommodate off-spec material and will also provide a supply "safety valve" by allowing refiners to produce additional 500 ppm highway diesel fuel, should this be necessary, without violating the program requirements.

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I. Pre-compliance Report Requirements

The 2007 highway diesel final rule (66 FR 5002, January 18, 2001) requires any refiner or importer planning to produce or import highway diesel fuel in 2006 to submit annual pre-compliance reports to the Agency. The purpose of these reports is to help facilitate the market for credit trading under the highway diesel fuel program's temporary compliance option (TCO)^a. These reports, the first of which were due June 1, 2003,^b must contain the following information:

1. Any changes in the refiner's or importer's basic company or facility information since registration.
2. Estimates of the volumes of 15 parts-per-million (ppm) sulfur diesel fuel and, if applicable, 500 ppm sulfur diesel fuel to be produced from crude oil in each refinery and/or imported by each importer, as well as the volumes of each grade of highway diesel fuel produced from other sources.
3. Estimates of the numbers of credits to be generated and/or used.
4. Information regarding engineering plans (e.g., design and construction), capital commitments for making the necessary modifications to produce low sulfur highway diesel fuel, the status of obtaining any necessary permits, and actual construction progress.

We recognize that the highway diesel fuel 2003 pre-compliance reports reflect preliminary information as most refineries which are currently in the planning stage are expecting to make final decisions over the next several months. Our conclusions from these reports are based on this preliminary information. Future reports that we release (i.e., our Summary and Analysis of the Pre-compliance Reports for 2004 and 2005) will be based on the pre-compliance reports that are submitted in 2004 and 2005 and will therefore reflect any new or updated information relative to the information that we received this year.

In addition to the information required above for all refiners, small refiners and Geographic Phase-in Area (GPA) refiners must provide additional information in their pre-compliance reports. For small refiners, the required information varies according to which small refiner option the refiner plans to use. The following paragraphs summarize the supplementary information required for small and GPA refiners.

^a The TCO is described in the preamble to the 2007 highway diesel final rule at 66 FR 5065, January 18, 2001.

^b Subsequent reports are due on June 1, 2004 and 2005. In our proposal for controlling the sulfur content of nonroad, locomotive, and marine diesel fuel (68 FR 28328, May 23, 2003) we proposed to extend the annual pre-compliance reporting requirement through 2010 (or until 15 ppm sulfur nonroad diesel fuel is produced, whichever is later) to help facilitate the introduction of the nonroad diesel fuel standards.

Small Refiners

The highway diesel final rule provided three compliance options for qualifying small refiners: 1) 500 ppm sulfur option, 2) small refiner credit option, and 3) diesel/gasoline compliance date option. A description of the additional reporting requirements for each of these options follows.

500 ppm Sulfur Option

The 500 ppm sulfur option allows an approved small refiner to continue to produce and sell highway diesel fuel meeting the 500 ppm sulfur standard through May 31, 2010, provided that it reasonably ensures the existence of sufficient volumes of 15 ppm sulfur highway diesel fuel in the marketing area(s) that it serves.

The pre-compliance report for a small refiner planning to use this option must make a showing that sufficient sources of 15 ppm sulfur highway diesel fuel will likely exist in the area. If after 2003 the sources of 15 ppm sulfur highway diesel fuel decrease, the pre-compliance reports for 2004 and/or 2005 must identify this change and must include a supplementary showing that the sources of 15 ppm sulfur highway diesel fuel are still sufficient.

Small Refiner Credit Option

Under the small refiner credit option, an approved small refiner that chooses to produce 15 ppm sulfur highway diesel fuel prior to June 1, 2010, may generate and sell credits under the TCO. Since small refiners have no requirement to produce 15 ppm sulfur highway diesel fuel (prior to June 1, 2010), any fuel that they produce at or below the 15 ppm sulfur standard will qualify for credits under this option.

The pre-compliance reporting requirements for small refiners choosing this option are identical to those for the 500 ppm sulfur option (that is, if the small refiner is also producing 500 ppm sulfur highway diesel fuel), with the additional requirement that the refiner also reports on any credits it expects to generate and sell.

Diesel/Gasoline Compliance Date Option

Under the diesel/gasoline compliance date option, approved small refiners that are also subject to the Tier 2/Gasoline Sulfur program (40 CFR Part 80, Subpart H) may extend the duration of their applicable interim gasoline sulfur standards by three years (until January 1, 2011), provided that they produce all of their highway diesel fuel at the 15 ppm sulfur standard beginning June 1, 2006.

Pre-compliance reports from any small refiners expecting to use this option must provide information showing that diesel desulfurization plans are on track for compliance with the 15

I. Pre-compliance Report Requirements

ppm sulfur standard by June 1, 2006. In addition to the information required above for all refiners regarding the expansion of desulfurization capacity, the pre-compliance reports for small refiners expecting to use this option need to reasonably show that the refiner will be in a position by June 1, 2006 to produce 100 percent of its highway diesel fuel compliant with the 15 ppm sulfur standard and that its total highway diesel fuel production will be at least 85 percent of its highway diesel fuel baseline volume.

GPA Refiners

Under the GPA refiner option, GPA refiners under the Tier 2/Gasoline Sulfur program may extend the duration of their applicable interim gasoline sulfur standards by two years (until January 1, 2009), provided that they produce all of their highway diesel fuel at the 15 ppm sulfur standard beginning June 1, 2006.

Like the pre-compliance reports from small refiners that choose to use the diesel/gasoline compliance date option described above, pre-compliance reports from any refiners or importers expecting to use the GPA refiner option must provide information showing that diesel desulfurization plans are on track. In addition to the information about the expansion of desulfurization capacity required above for all refiners, the pre-compliance reports for prospective GPA refiners need to reasonably show that the refiner will be in a position by June 1, 2006 to produce 100 percent of its highway diesel fuel that is compliant with the 15 ppm sulfur standard and that its total highway diesel fuel production will be at least 85 percent of its highway diesel fuel baseline volume.

II. Summary Statistics

A. Nationwide Analysis

According to the Energy Information Administration (EIA), 160 refineries reported producing either high or low sulfur distillate (or both) fuels in 2000.^c Of these distillate-producing refineries, 121 produced highway-compliant diesel fuel (less than or equal to 500 ppm sulfur) in the year 2000. This number includes data for three refinery/importers that are located outside of the United States. We received pre-compliance reports or information for all of the 121 refineries that produced highway-compliant diesel fuel in 2000^d.

In addition to the reports that we received from current highway diesel fuel producers, we received reports from five refineries that did not produce highway diesel fuel in 2000 but indicated that they would beginning in 2006. One additional refinery that did not produce highway diesel fuel in 2000 indicated that it would shift into the market in 2010.

Reported totals for all refineries and importers planning to produce highway diesel during and after the first year of the TCO (2006) are summarized in Tables 1 and 2, below. These tables show that in 2006, 111 refineries reported that they intend to produce an estimated total volume of 2.9 million barrels per day (bbls/day)^e of highway diesel fuel (15 ppm sulfur + 500 ppm sulfur). Approximately 2.7 million bbls/day, or 96 percent of the national total, is anticipated to be 15 ppm sulfur highway diesel fuel, with the remaining four percent meeting the 500 ppm sulfur highway diesel fuel standard.

Over the duration of the TCO, approximately 23.9 billion-gallon credits are anticipated to be generated, and approximately 1.5 billion-gallon credits (six percent of total credits generated) are anticipated to be used for a net result of 22.3 billion-gallon credits generated. A total of 34

^c Includes those that produce both high (greater than 500 ppm sulfur) and low (less than or equal to 500 ppm sulfur) sulfur distillate fuel.

^d We did not receive pre-compliance reports from any non-refiner importers. However, we have begun to follow up with them to ensure more complete information on imported highway diesel fuel for next year's report.

^e Diesel fuel volume information was submitted in units of gallons per year pursuant to the pre-compliance reporting requirements under § 80.594. Since the compliance periods in 2006 and 2010 are not full years, we converted the reported values which were in units of gallons per year to equivalent barrels per calendar day to compare the aggregated volumes and credits on an equal basis from 2006 through 2010. Volumes and credits were converted from an annual basis to a daily basis by dividing by the number of days in each compliance period, and then converted from gallons to barrels by dividing by 42 gallons/barrel. The aggregated volumes and credits for 2006 were divided by 214 days (the 2006 compliance period is from June 1, 2006 through December 31, 2006), and the aggregated volumes and credits for 2010 were divided by 151 days (the 2010 compliance period is from January 1, 2010 through May 31, 2010).

refineries, which produced a total of 487 thousand bbls/day of highway diesel fuel in 2000, will be unable to generate credits due to their status as a California, small, GPA or hardship refiner. A more detailed discussion of these results follows.

1. Number of Refineries and Importers

In the final highway diesel rule, we evaluated compliance costs for producing 15 ppm sulfur highway diesel fuel under two scenarios: 1) all current producers of highway diesel fuel continue to do so, and 2) some refineries increase production of highway diesel fuel and some refineries shift out of the highway diesel fuel market due to relatively high desulfurization costs. Our cost projections for the highway diesel final rule were based on the first scenario to be conservative. However, we also performed a sensitivity analysis based on the second scenario. Under this scenario, some refineries that currently produce relatively small volumes of highway diesel fuel would face relatively high costs per gallon to desulfurize a given volume of diesel fuel. At the same time, other refineries that currently produce no (or a relatively small volume of) highway diesel fuel could convert their diesel production from high sulfur (i.e., greater than 500 ppm sulfur) down to 15 ppm sulfur at a relatively low cost. Consequently, in our sensitivity analysis we projected that a number of refineries would shift into or significantly expand their presence in the highway diesel fuel market. The pre-compliance reports appear to be supporting this projection.

As shown in Table 1, below, 111 refineries reported that they intend to produce highway diesel fuel in 2006. Of these 111 refineries, five are new to the highway diesel fuel market. Between 2000 and 2003, seven refineries ceased producing highway diesel fuel^f. The pre-compliance reports indicate that an additional eight refineries intend to shift out of the highway diesel fuel market in 2006. However, two of these eight refineries are planning to transport distillate to neighboring refineries for desulfurization, and two other refineries indicated they are studying similar options. Based on information available to us, the remaining refineries that are not intending to produce highway diesel fuel in 2006 are shifting to the off-highway diesel fuel market. During the TCO, three more refineries are expected to shift into the highway diesel fuel market to yield a total of 114 refineries producing highway diesel fuel in 2010. This is what we expected and is consistent with our analysis for the highway diesel final rule^g.

Approximately 40 percent of refineries are planning to decrease production of highway diesel fuel in 2006 whereas over 60 percent of refineries are planning to increase production (see Figure 1, below). Specifically, 74 refineries reported that they intend to produce more highway

^f Four of these refineries are shutdown, two are specialty product refineries that do not typically produce motor vehicle fuels (including highway diesel fuel), and one refinery is considered a closely integrated facility with another refinery in its company and therefore does not report as a separate refinery.

^g Refer to Table V.C-22 (Costs Under Non-Highway Production Shift Scenario) of the Regulatory Impact Analysis for the highway diesel final rule.

II. Summary Statistics - Nationwide Analysis

diesel fuel than they did in 2000, including five refineries that produced no highway diesel fuel in 2000^h and 45 refineries intend to produce less highway diesel fuel than they did in 2000, including eight refineries that intend to shift out of the highway diesel fuel market.

**Table 1. U.S. Aggregated Report Information – Highway Diesel Fuel Refinery Statistics
2006-2010**

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	114	111	111	112	112	114
# refineries at 100% 15 ppm		81	83	85	86	92
# refineries at 100% 500 ppm	114	10	9	9	9	8
# refineries with 15/500 ppm mix		20	19	18	17	14
# refineries increasing production		74	77	77	77	83
# refineries shifting into the highway market		5	5	5	5	6
# refineries decreasing production		45	42	42	42	37
# refineries shifting out of the highway market		8	8	7	7	6
# refineries generating credits		54	54	55	55	
# refineries using credits		7	6	6	6	5

^h Based on refinery distillate production volumes (confidential business information) provided by the Energy Information Administration (EIA).

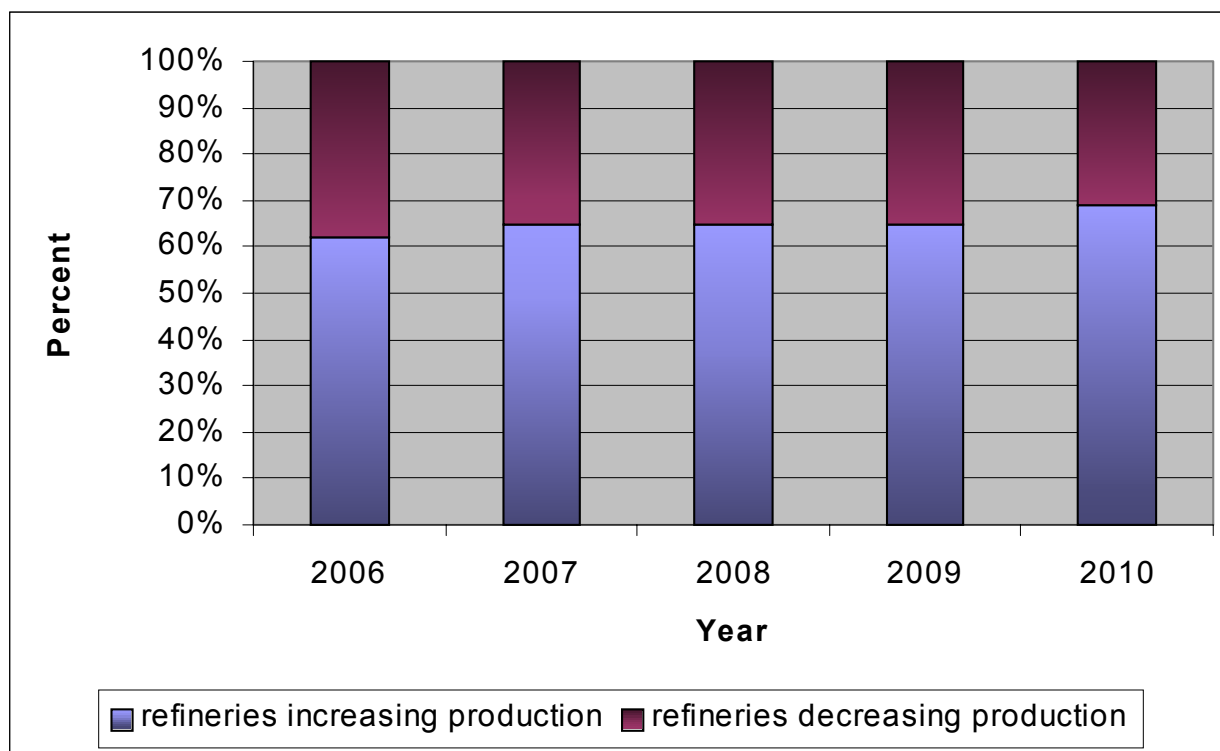


Figure 1. Percent of Refineries Increasing or Decreasing Highway Diesel Fuel Production Relative to the Year 2003

2. Production Versus Consumption

Table 2, below, shows the total projected production of highway diesel fuel for 2006 through 2010. The pre-compliance reports project 2.9 million bbls/day of highway diesel fuel production for 2006. This volume increases to approximately 3.2 million bbls/day for 2010. These volume projections are likely slightly conservative given that not all imported highway diesel fuel has been accounted for due to the suspected under-reporting by importers. We estimate that approximately two percent of the total highway diesel fuel supply is currently unaccounted for based on the pre-compliance information received to dateⁱ.

ⁱ In 2000, approximately 2.6 million bbls/day of highway-compliant (less than or equal to 500 ppm sulfur) diesel fuel were supplied in the U.S. Of that total supply, imports accounted for 134 thousand bbls/day or 5.2 percent. The refineries located outside of the U.S. from which we received pre-compliance reports produced approximately 76 thousand bbls/day, or 57 percent of the total volume of highway-compliant diesel fuel that was imported in 2000 and about three percent of the total volume of highway-compliant diesel fuel that was supplied in the U.S. in 2000. Therefore, approximately 43 percent of imports or two percent of the total supply of highway
(continued...)

II. Summary Statistics - Nationwide Analysis

On a volume basis, the 74 refineries that are planning to produce more highway diesel fuel than they did in 2000 reported a cumulative increase in their highway diesel fuel production volume of approximately 708 thousand bbls/day, and the 45 refineries planning to produce less highway diesel fuel than in 2000 reported a cumulative decrease in their highway diesel fuel production volume of approximately 390 thousand bbls/day. This results in a projected net increase of 318 thousand bbls/day of highway diesel fuel produced in 2006. This growth continues into the future as shown in Figure 2, below.

**Table 2. U.S. Aggregated Report Information – Highway Diesel Fuel Volume and Credits
2006-2010^j**

Year	2000	2006	2007	2008	2009	2010
total 15 ppm, bbls/day		2,740,357	2,875,585	2,919,188	2,922,284	3,121,229
total 500 ppm, bbls/day	2,542,904	120,562	110,688	110,677	110,488	79,873
15 + 500 ppm total, bbls/day	2,542,904	2,860,920	2,986,273	3,029,865	3,032,772	3,201,102
net volume change vs. 2000, bbls/day		318,015	443,369	486,960	489,867	658,198
% change from 2000 highway volume		12.5	17.4	19.1	19.3	25.9
% 500 of total 15 + 500 ppm	100.0	4.2	3.7	3.7	3.6	2.5
credit generation, bbls/day		413,912	432,007	439,904	441,685	
credit usage, bbls/day		28,390	24,790	24,647	24,934	21,020

ⁱ(...continued)

diesel fuel is currently unaccounted for based on the pre-compliance information received to date.

^j The base year for the highway diesel fuel refinery statistics is 2003 as shown in Table 1, above. However, the base year for the highway diesel fuel volume and credit statistics is 2000 as shown in Table 2, above, because refinery distillate production data are not yet available for calendar year 2003.

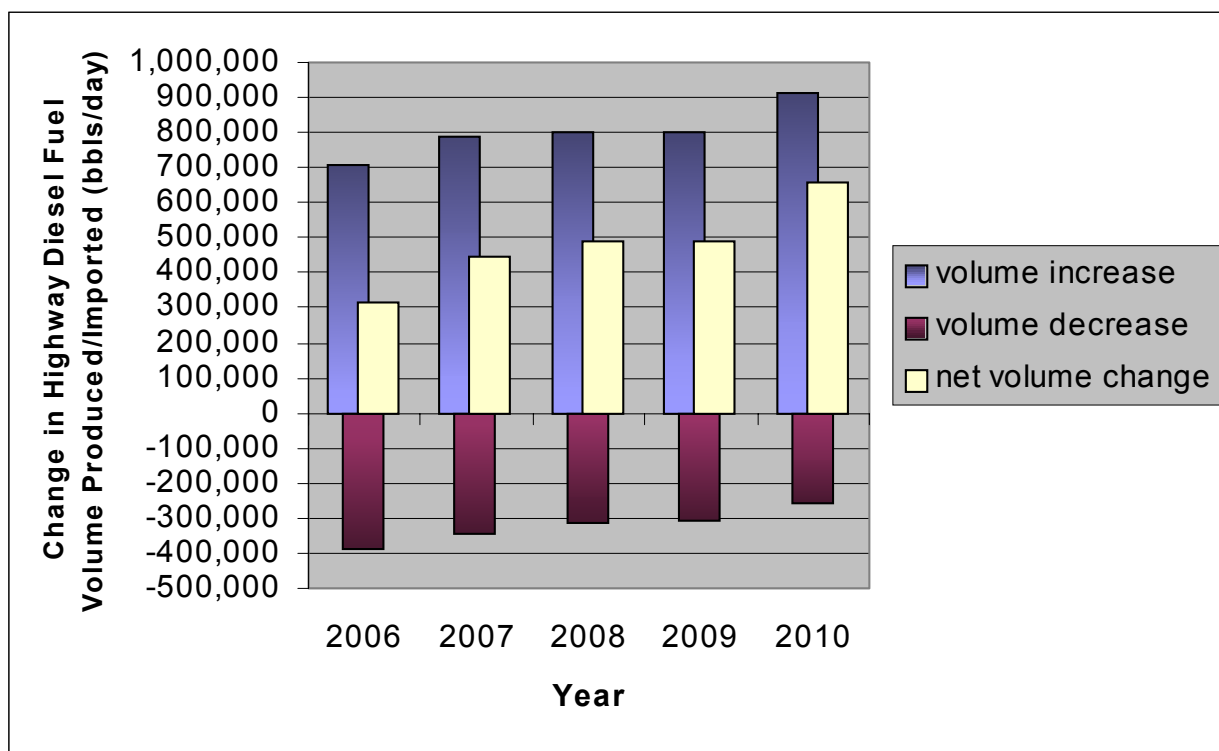


Figure 2. Nationwide Highway Diesel Fuel Volume Change vs. 2000

Table A2 of the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) reports projected energy consumption values by sector and source in quadrillion British Thermal Units (Btu) per year. In both the AEO 2000³ and 2003⁴, consumption values were projected for distillate fuel in the transportation sector for the years 2005 and 2010. We assumed a linear growth rate from 2005 until 2010 to estimate values for 2006 through 2009. We then converted these values to bbls/day by dividing by 138,700 Btu/gal⁵ and 365 days per year. Results of this analysis are shown in Table 3, below.

II. Summary Statistics - Nationwide Analysis

Table 3. Reported Production of Highway Diesel Fuel vs. Estimated Demand

Year	Total Reported Production (000 bbls/day)	Estimated Consumption AEO 2000 (000 bbls/day)	Estimated Consumption AEO 2003 (000 bbls/day)
2000	2,560		
2006	2,863	2,622	2,916
2007	2,986	2,644	3,019
2008	3,030	2,666	3,123
2009	3,032	2,687	3,226
2010	3,203	2,709	3,330

Thus, based on the pre-compliance reports, it would appear that highway diesel fuel production will be sufficient in 2006 and beyond as refiners' plans are roughly in line with projected highway diesel fuel consumption. The highway diesel final rule projected a highway diesel fuel consumption of 2.6 million bbls/day for 2006, based on the EIA's AEO 2000. Projected highway diesel fuel consumption using more recent data from EIA's AEO 2003 is around three million bbls/day. Based on this information, we conclude that refiners appear to be planning for increased growth which is consistent with the more recent data.

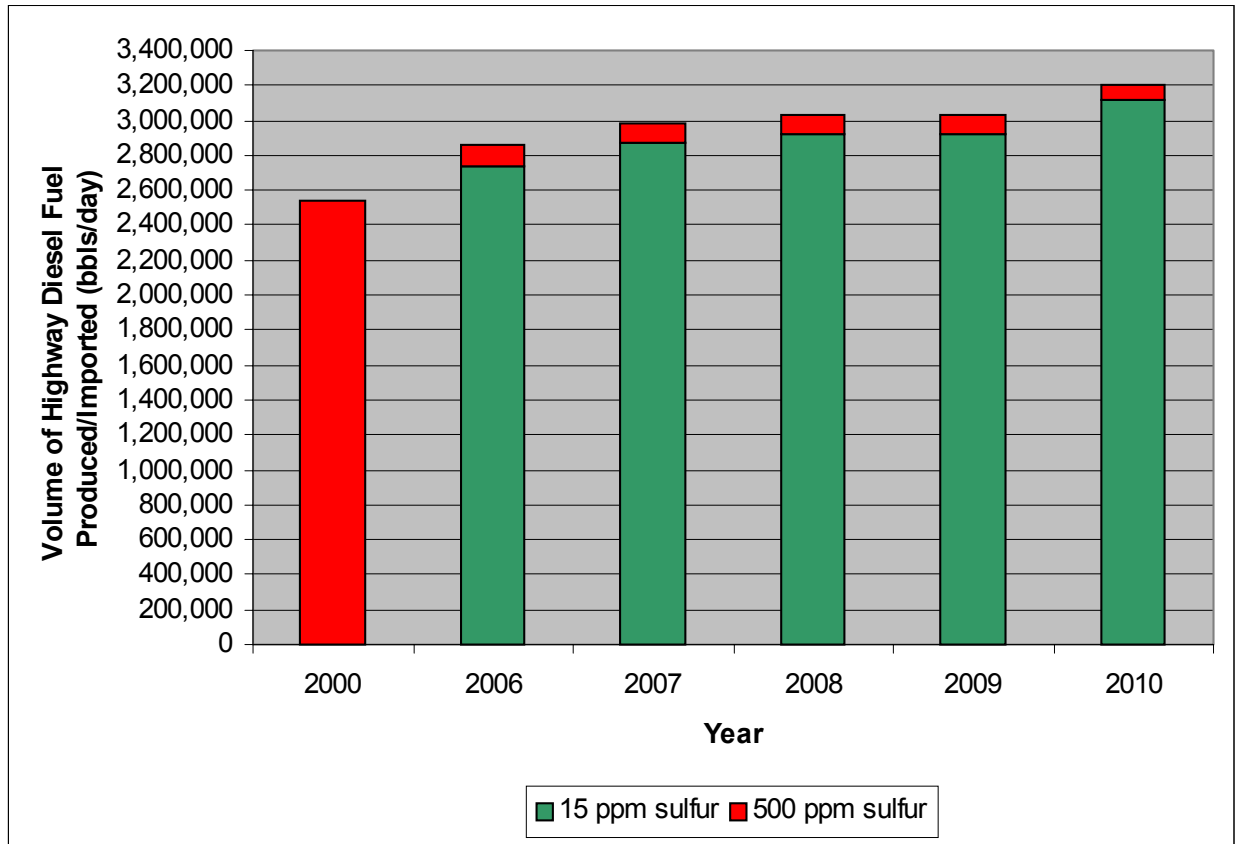


Figure 3. Projected U.S. Diesel Fuel Production, 2006-2010

II. Summary Statistics - Nationwide Analysis

3. Availability of 15 ppm sulfur Highway Diesel Fuel

The pre-compliance reports show that 15 ppm sulfur diesel fuel will be widely available. On a volume basis, 96 percent of highway diesel fuel produced in 2006 is projected to meet the 15 ppm sulfur standard. On a refinery basis, over 90 percent of refineries have stated that they plan to produce some 15 ppm diesel fuel. Specifically for 2006, as shown in Table 1, above, 81 refineries reported that they intend to produce 100 percent of their highway diesel fuel with 15 ppm or less of sulfur, 10 refineries intend to produce 100 percent of their highway diesel fuel at the 500 ppm sulfur level, and 20 refineries intend to produce a mix of 15 ppm sulfur and 500 ppm sulfur highway diesel fuel. Based on the consistency of the results across all PADDs as discussed below, the restrictions placed in the highway diesel final rule on credit trading within Petroleum Administrative Defense Districts (PADDs) appear to be having their desired impact. All areas of the country will have 15 ppm sulfur highway diesel fuel available.

In the highway diesel final rule, we projected that 15 ppm sulfur highway diesel fuel would be available nationwide with 80 percent of the highway diesel fuel market converted to the 15 ppm sulfur level. With 96 percent of the market projected to be 15 ppm sulfur highway diesel fuel, we can have even greater confidence in the fuel's nationwide availability. Conversely, 500 ppm sulfur highway diesel fuel may have even less widespread availability than the 40 percent of the country projected in the highway diesel final rule. Its main source of distribution may be directly from refinery racks.

4. Projected Credit Generation and Use

Given that the majority of highway diesel fuel is anticipated to meet the 15 ppm sulfur standard, a large credit volume is expected within each PADD, as shown in Table 4. This large credit volume will help to accommodate off-spec distillate material and will also provide a supply "safety valve" by allowing for an additional volume of 500 ppm sulfur highway diesel fuel without violating the TCO requirements.

Table 4. Projected Volume of Credits Generated and Used by PADD^k during the TCO

Credits (million gallons)	PADD 1	PADD 2	PADD 3	PADD 4	PADD 5
Generated	2,928	6,191	14,166	284	545
Used	(40)	(435)	(988)	0	(66)
Net	2,889	5,756	13,177	284	479

At this point in time, it is too early to reach any definite conclusions regarding the extent to which refineries will use credits for compliance purposes or the extent to which they will make the credits that they generate available for purchase by other refineries. This information will become clearer with time as the program’s implementation date becomes closer. Nevertheless, preliminary information from the pre-compliance reports shows that six refineries will be using credits generated by other refineries within their companies and within the same PADD. The reports also show that one refinery is planning on purchasing credits. Most refineries appear to be using credits as an internal insurance policy/safety valve should they need to or want to produce an additional volume of 500 ppm sulfur highway diesel fuel during the TCO. For example, credits could be used to produce additional volumes of 500 ppm sulfur fuel during turnaround or upset situations as well as in response to changes in the market (e.g., increases in demand for highway diesel fuel).

5. Project Timing

In addition to highway diesel fuel volume and credit projections, the pre-compliance reports must contain information outlining each refinery’s timeline for compliance with the 15 ppm sulfur standard and provide information regarding engineering plans (e.g., design and construction). The 2003 pre-compliance reports indicated that most companies are in the planning stage now and expect to make final decisions before the first quarter of 2004. This information is consistent with the expectations in the highway diesel final rule and EPA’s 2002 Highway Diesel Progress Review. Consequently, it was not possible for the 2003 reports to contain a substantial amount of information on specific engineering plans. What information was reported on engineering, construction, and unit start-up dates is summarized below in Table

^k Under the highway diesel fuel program, credits may only be used in the PADD in which they were generated. Additional limitations on credit generation and use apply in PADD 5 – Alaska and Hawaii are separate credit trading regions under the highway diesel fuel program. In addition, refineries located in states with a state-approved 15 ppm sulfur highway diesel fuel program are not allowed to participate in the credit program (*See* 66 FR 5068, January 18, 2001, for more information). To protect confidential business information, data for refineries located in Alaska and Hawaii was included in PADD 5 for the purposes of this report.

II. Summary Statistics - Nationwide Analysis

5 and Figure 4. We expect that additional information on engineering plans and timing will be included in the 2004 pre-compliance reports.

Table 5. Number of Refineries by Engineering/Construction Progress

	<i>Engineering</i>	<i>Construction</i>
Started by June 2003	33	5
Completed by June 2003	2	1

As shown in Figure 4, below, many refiners appear to be staggering their start-up, which should help to ease the transition to 15 ppm sulfur highway diesel fuel in 2006. Of the reports that contained information on engineering, construction, and unit start-up progress, about 37 percent indicated that they will come online prior to June 1, 2006.

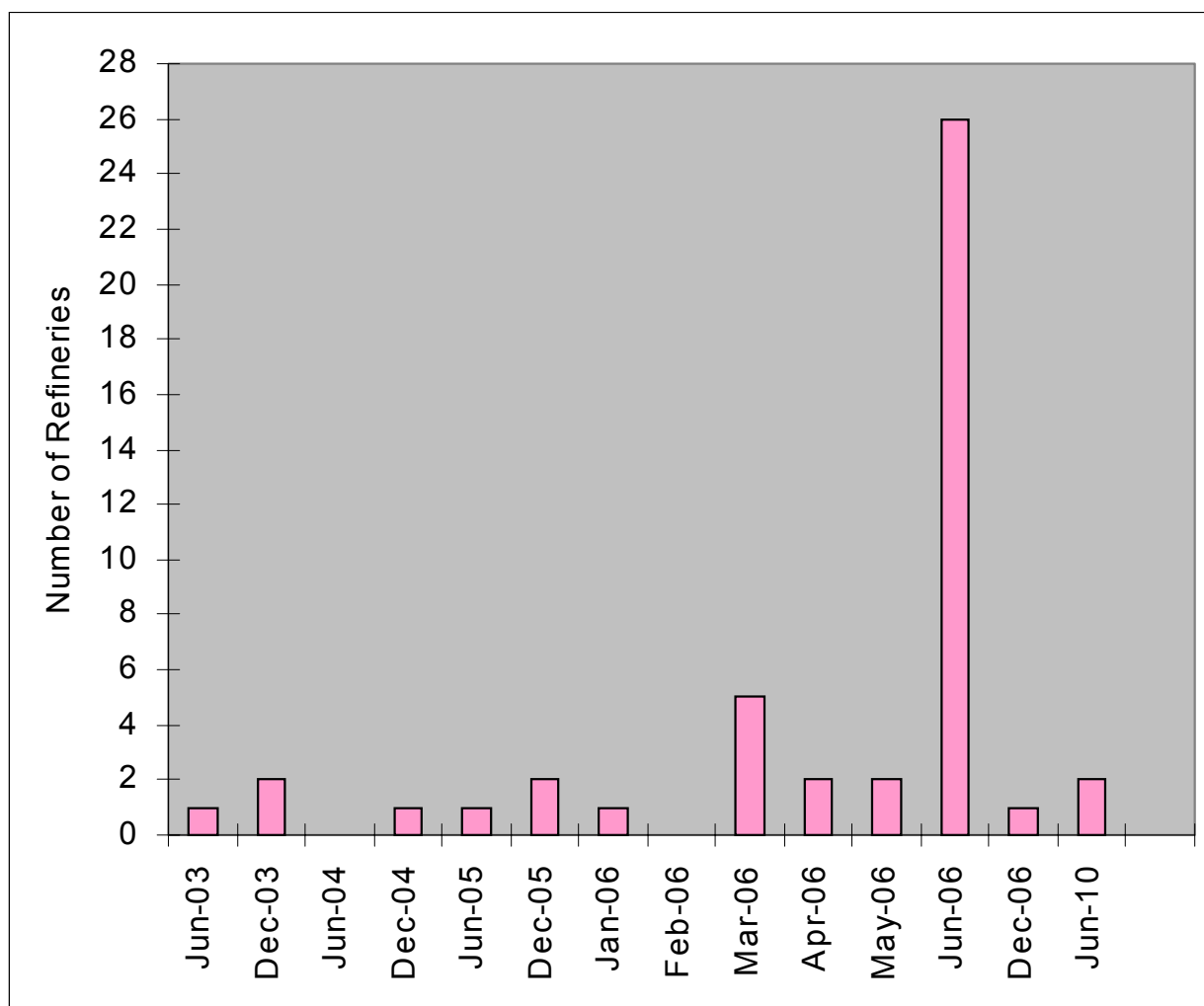


Figure 4. Projected Start-up Date for Producing 15 ppm Highway Diesel Fuel¹

¹ While some refineries reported their projected start-up date on a monthly basis, others reported on a quarterly basis. For those that reported on a quarterly basis, we assumed the month that would correspond with the end of the quarter to be conservative.

6. Revamped Versus Grassroots Projects

We stated in the highway diesel final rule that we expect refiners will meet the 15 ppm sulfur standard using an extension of the same hydrotreating technology which is used today to meet the 500 ppm sulfur standard. Meeting the new standard will generally require refiners to install additional hydrotreating equipment. We projected that approximately 80 percent of refineries would revamp additional hydrotreating capacity and other related equipment to their existing desulfurization unit. However, we also projected that approximately 20 percent would conclude that it would not be economical to add onto their existing unit and could instead build an entirely new hydrotreater.

Given the preliminary nature of the 2003 reports, not all refineries were yet in a position to provide sufficient detail in their reports on final decisions for refinery modifications, nevertheless, forty-seven refineries submitted information in their pre-compliance reports on whether they were planning to revamp existing equipment or install new equipment. Thirty-five refineries (75 percent) indicated that they are planning to revamp existing equipment to comply with the requirements of the highway diesel fuel program. Seven additional refineries (15 percent) reported that they are planning to install a new unit and five other refineries (10 percent) stated that they are planning to revamp existing equipment as well as install new equipment. The results of this sample appear to be consistent with our projections in the highway diesel final rule.

7. Small and GPA Refiner Options

The highway diesel fuel regulations contain three options which provide qualified small refiners with additional flexibilities to the TCO. Option A allows an approved small refiner's refinery to produce all of its highway diesel fuel (up to a volume limit tied to the refinery's highway diesel fuel baseline volume) at the 500 ppm sulfur level during the TCO years (June 2006 through May 2010), provided the refiner shows in its pre-compliance report that adequate supplies of 15 ppm sulfur highway diesel fuel will be available in the refinery's marketing area. Six refineries with a total highway diesel fuel production capacity of approximately eight thousand bbls/day (based on EIA data for 2000) have chosen option A. Option B allows a small refiner to generate credits for any volume of 15 ppm sulfur highway diesel fuel produced. Five refineries with a total highway diesel fuel production capacity of approximately 31 thousand bbls/day (based on EIA data for 2000) have chosen option B. Finally, option C allows a small refiner's refinery to extend its compliance date for the Tier 2 gasoline sulfur standards by three years in exchange for producing all of its highway diesel fuel (above a minimum volume limit tied to the refinery's baseline volume) at the 15 ppm sulfur standard by June 1, 2006. Nine refineries with a total highway diesel fuel production capacity of approximately 99 thousand bbls/day (based on EIA data for 2000) have chosen option C.

Table 6. Intended Small Refiner Compliance Options by Number of Refineries and Highway Diesel Fuel Production Capacity

Option	Description	Number of Refineries	Highway Diesel Fuel Production Capacity (000 bbls/day)
A.	500 ppm sulfur Option	6	8
B.	Credit Option	5	31
C.	Diesel/Gasoline Compliance Date Option	9	99
	Total	20	138

The highway diesel fuel regulations also contain an option that allows a GPA refinery to extend its compliance date for the final Tier 2 gasoline sulfur standards by two years in exchange for producing all of its highway diesel fuel (above a minimum volume threshold tied to the refinery's baseline volume) at the 15 ppm sulfur standard by June 1, 2006. Eleven of the 35 GPA refineries with a total highway diesel fuel production volume of approximately 88 thousand bbls/day (based on EIA data for 2000) have chosen this option.

B. PADD Analysis

Tables 7 through 10 below show the projected numbers of refineries and volumes of highway diesel fuel produced in each PADD for the first and last years of the TCO. In each PADD, one refinery is projected to shift into the highway diesel fuel market in 2006 and an additional refinery is projected to shift into the highway diesel fuel market in PADD 3 by 2010. One refinery in PADDs 2 and 3 returns to the highway diesel fuel market between 2006 and 2010. This is what we expected and is consistent with our analysis for the highway diesel final rule.

Relative to the year 2000, on a PADD basis, increases in total highway diesel fuel production are projected in PADDs 2, 3, and 5, while slight decreases are projected in PADDs 1 and 4. However, as shown in Tables 8 and 10 and Figures 5 and 6, below, these decreases are dwarfed by the gains in PADDs 2, 3, and 5, and should be easy to offset through inter-PADD diesel fuel shipments. Overall, a net increase of 318 thousand bbls/day of highway diesel fuel production is expected in 2006 and an increase of 658 thousand bbls/day is anticipated in 2010. In all PADDs, 15 ppm sulfur highway diesel fuel will dominate the highway market, ranging from 94 percent of the highway diesel fuel in PADD 4 to 97 percent in PADD 1. Additional information on each PADD is described in the following sections.

Summary and Analysis of the Highway Diesel Fuel 2003 Pre-compliance Reports – October 2003

Table 7. Projected Number of Highway Diesel Fuel Refineries by PADD for 2006

PADD	1	2	3	4	5	total U.S.
# refineries producing highway diesel fuel	12	24	39	15	21	111
# refineries at 100% 15 ppm	10	16	29	10	16	81
# refineries at 100% 500 ppm	0	3	4	2	1	10
# refineries with 15/500 ppm mix	2	5	6	3	4	20
# refineries increasing production	7	19	23	8	17	74
# refineries shifting into the highway market	1	1	1	1	1	5
# refineries decreasing production	6	6	20	7	6	45
# refineries shifting out of the highway market	1	1	4	0	2	8
# refineries generating credits	9	14	25	2	4	54
# refineries using credits	1	2	3	0	1	7

Table 8. Projected Volumes of Highway Diesel Fuel by PADD for 2006

PADD	1	2	3	4	5	total U.S.
total 15 ppm, bbls/day	275,993	695,585	1,278,380	110,767	379,633	2,740,357
total 500 ppm, bbls/day	9,107	43,877	44,777	7,027	15,774	120,562
15 + 500 ppm total, bbls/day	285,100	739,461	1,323,157	117,795	395,407	2,860,920
net volume change vs. 2000, bbls/day	-12,803	85,324	204,608	-3,079	43,965	318,015
% change from 2000 highway volume	-4.3	13.0	18.3	-2.5	12.5	12.5
% 500 of total 15 + 500 ppm	3.2	5.9	3.4	6.0	4.0	4.2
credit generation, bbls/day	48,949	109,582	240,725	4,972	9,684	413,912
credit usage, bbls/day	4,411	7,016	15,605	0	1,357	28,390

II. Summary Statistics - PADD Analysis

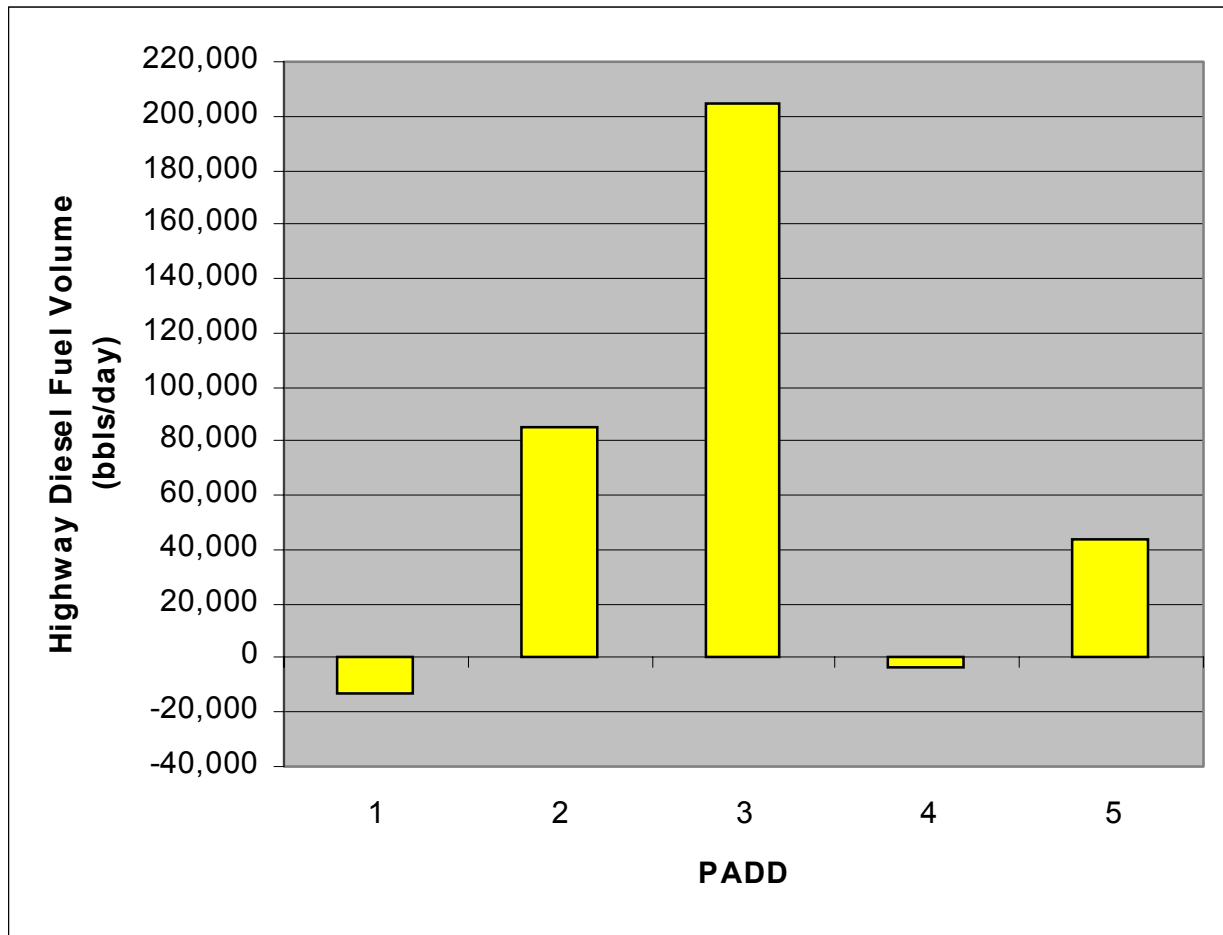


Figure 5. Highway Diesel Fuel Volume Change 2006 vs. 2000 by PADD

Summary and Analysis of the Highway Diesel Fuel 2003 Pre-compliance Reports – October 2003

Table 9. Projected Number of Highway Diesel Fuel Refineries by PADD for 2010

PADD	1	2	3	4	5	total U.S.
# refineries producing highway diesel fuel	12	25	41	15	21	114
# refineries at 100% 15 ppm	10	17	34	14	17	92
# refineries at 100% 500 ppm	0	3	3	1	1	8
# refineries with 15/500 ppm mix	2	5	4	0	3	14
# refineries increasing production	7	20	30	8	18	83
# refineries shifting into the highway market	1	1	2	1	1	6
# refineries decreasing production	6	5	14	7	5	37
# refineries shifting out of the highway market	1	0	3	0	2	6
# refineries generating credits						
# refineries using credits	0	2	2	0	1	5

Table 10. Projected Volume of Highway Diesel Fuel by PADD for 2010

PADD	1	2	3	4	5	total U.S.
total 15 ppm, bbls/day	293,332	778,886	1,530,579	119,807	398,624	3,121,229
total 500 ppm, bbls/day	2,360	39,156	29,934	1,249	7,175	79,873
15 + 500 ppm total, bbls/day	295,692	818,042	1,560,513	121,056	405,799	3,201,102
net volume change vs. 2000, bbls/day	-2,211	163,905	441,964	183	54,357	658,198
% change from 2000 highway volume	-0.7	25.1	39.5	0.2	15.5	25.9
% 500 of total 15 + 500 ppm	0.8	4.8	1.9	1.0	1.8	2.5
credit generation, bbls/day	0	0	0	0	0	0
credit usage, bbls/day	0	7,228	13,272	0	520	21,020

II. Summary Statistics - PADD Analysis

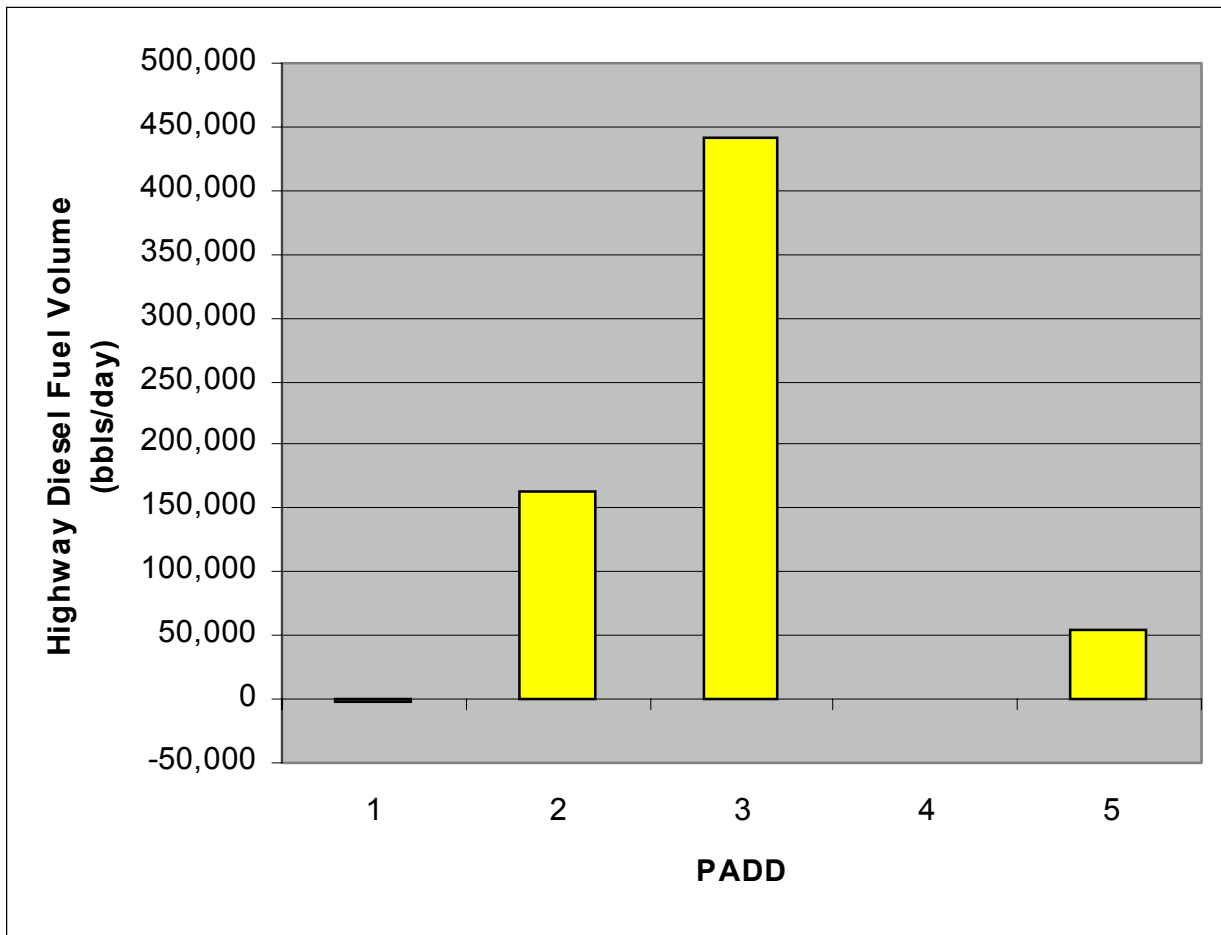


Figure 6. Highway Diesel Fuel Volume Change 2010 vs. 2000 by PADD

1. PADD 1



Number of Refineries

Reported totals for all PADD 1 refineries are summarized in Tables 11 and 12, below. These tables show that for the first year of the TCO (2006), 12 refineries reported that they intend to produce an estimated volume of 285 thousand bbls/day total (15 ppm sulfur + 500 ppm sulfur) highway diesel fuel. Specifically, 10 refineries reported that they intend to produce 100 percent of their highway diesel fuel with 15 ppm or less of sulfur, no refineries intend to produce 100 percent of their highway diesel fuel at the 500 ppm sulfur level, and two refineries intend to produce a mix of 15 ppm sulfur and 500 ppm sulfur highway diesel fuel. Seven refineries reported that they intend to produce more highway diesel fuel than they did in 2000, including one refinery that produced no highway diesel fuel in 2000. Six refineries intend to produce less highway diesel fuel than they did in 2000, including one refinery that intends to shift out of the highway diesel fuel market. No further change in either the number of refineries producing highway diesel fuel or the number of refineries increasing or decreasing highway diesel fuel production is expected for 2010.

Highway Diesel Fuel Production

As shown in Figure 7, below, the seven refineries planning to produce more highway diesel fuel than in 2000 reported a cumulative increase in their highway diesel fuel production volume of approximately 75 thousand bbls/day, and the six refineries planning to produce less highway diesel fuel than in 2000 reported a cumulative decrease in their highway diesel fuel production volume of approximately 87 thousand bbls/day. This results in a net decrease of 13 thousand bbls/day. In 2010, this net reduction decreases to approximately two thousand bbls/day. While these results indicate that there will be a reduction in the production of highway diesel fuel in PADD 1, these reductions are not of great concern given the pipeline connections between PADDs 1 and 3. In the year 2000, PADD 3 supplied approximately 473 thousand bbls/day of highway diesel fuel (or 42 percent of its highway diesel fuel production)^{m6} to PADD 1. The projected production decrease of 13 thousand bbls/day in PADD 1 represents only three percent of the amount of highway diesel fuel that was shipped from PADD 3 to PADD 1 in

^m This is consistent with the historical trend. Based on data from EIA's Petroleum Supply Annual, 44 percent of the highway diesel fuel produced in PADD 3 was shipped to PADD 1, on average, from 1995 through 2002.

II. Summary Statistics - PADD Analysis

2000. Furthermore, from 1995 to 2002, the amount of highway diesel fuel shipped from PADD 3 to PADD 1 increased by 28 percent. Finally, the net production increase in PADD 3, which is projected to be 205 thousand bbls/day, dwarfs the net decrease of 13 thousand bbls/day which is projected in PADD 1. Therefore, PADD 3 appears to be fully capable of addressing the small reported decrease in PADD 1 production.

In addition to the movement of highway diesel fuel from PADD 3 to PADD 1, some highway diesel fuel is supplied to PADD 1 via imports. Of the 134 thousand bbls/day of highway-compliant diesel fuel that were imported into the U.S. in 2000, PADD 1 received 81 percent or 109 thousand bbls/day⁷. As stated above, the refineries located outside of the U.S. from which we received pre-compliance reports produced approximately 76 thousand bbls/day of highway diesel fuel for the U.S. in the year 2000. This volume represents 57 percent of the total volume of highway-compliant diesel fuel that was imported in 2000 and about three percent of highway diesel fuel supply in 2000. Assuming that the remaining imports, which represent 43 percent of total imports or two percent of the total supply of highway diesel fuel in 2000 (58 thousand bbls/day) remain constant, and assuming PADD 1 received 81 percent, it would have an additional volume of 47 thousand bbls/day of highway diesel fuel. This volume far outweighs the projected 13 thousand bbls/day decrease in production.

Availability of 15 ppm Sulfur Highway Diesel Fuel

As shown in Figure 8, below, in 2006, approximately 276 thousand bbls/day, or 97 percent of the PADD 1 total, are anticipated to be 15 ppm sulfur highway diesel fuel, and the remaining nine thousand bbls/day, or three percent of the PADD 1 total, are anticipated to be 500 ppm sulfur highway diesel fuel. In 2010, the amount of 15 ppm sulfur highway diesel fuel increases to 99 percent of the total highway diesel fuel production for PADD 1.

Credit Generation and Use

In 2006, approximately 440 million-gallon credits are anticipated to be generated, and only 40 million-gallon credits are anticipated to be used to yield a net amount of 400 million-gallon credits generated.

Summary and Analysis of the Highway Diesel Fuel 2003 Pre-compliance Reports – October 2003

Table 11. PADD 1 Highway Diesel Fuel Refinery Statistics 2006-2010

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	12	12	12	12	12	12
# refineries at 100% 15 ppm		10	10	10	10	10
# refineries at 100% 500 ppm	12	0	0	0	0	0
# refineries with 15/500 ppm mix		2	2	2	2	2
# refineries increasing production		7	7	7	7	7
# refineries shifting into the highway market		1	1	1	1	1
# refineries decreasing production		6	6	6	6	6
# refineries shifting out of the highway market		1	1	1	1	1
# refineries generating credits		9	10	10	10	
# refineries using credits		1	0	0	0	0

Table 12. PADD 1 Highway Diesel Fuel Volume and Credit Statistics 2006-2010

Year	2000	2006	2007	2008	2009	2010
total 15 ppm, bbls/day		275,993	292,472	292,523	292,472	293,332
total 500 ppm, bbls/day	297,903	9,107	2,342	2,342	2,342	2,360
15 + 500 ppm total, bbls/day	297,903	285,100	294,814	294,864	294,814	295,692
net volume change vs. 2000, bbls/day		-12,803	-3,089	-3,038	-3,089	-2,211
% change from 2000 highway volume		-4.3	-1.0	-1.0	-1.0	-0.7
% 500 of total 15 + 500 ppm	100.0	3.2	0.8	0.8	0.8	0.8
credit generation, bbls/day		48,949	53,245	53,245	53,245	
credit usage, bbls/day		4,411	0	0	0	0

II. Summary Statistics - PADD Analysis

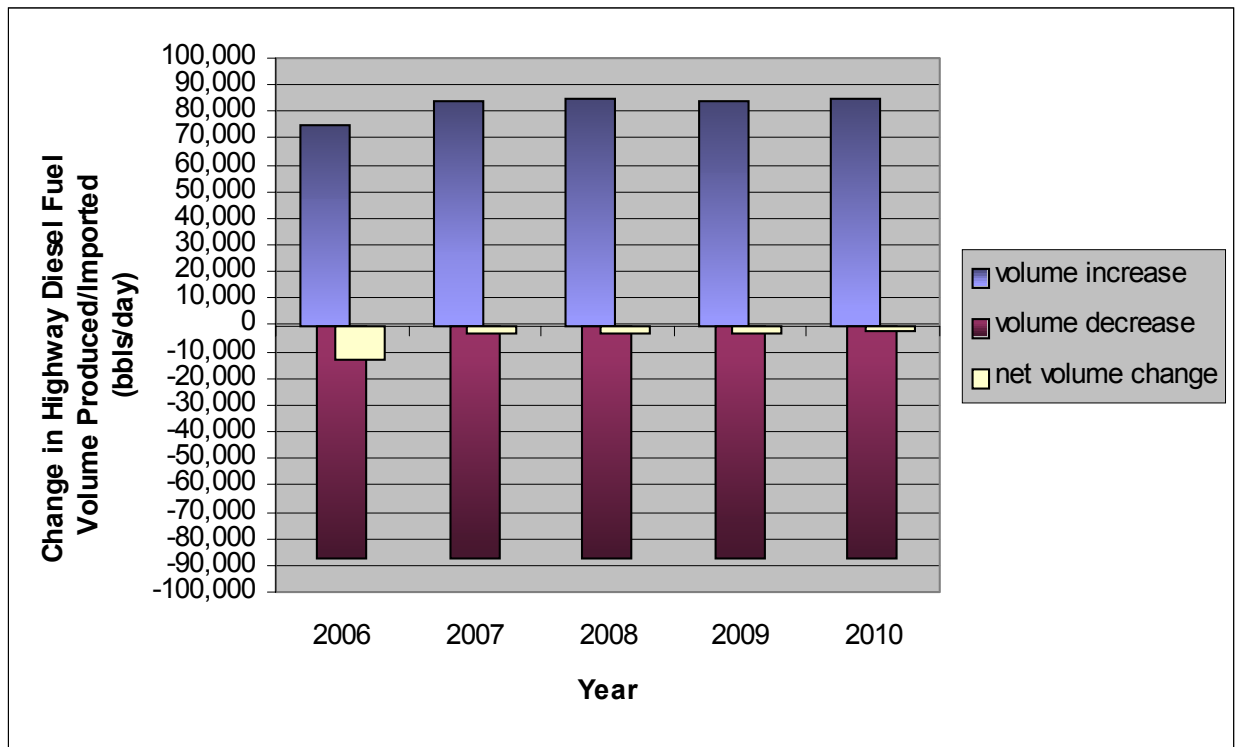


Figure 7. PADD 1 Highway Diesel Fuel Volume Change vs. 2000

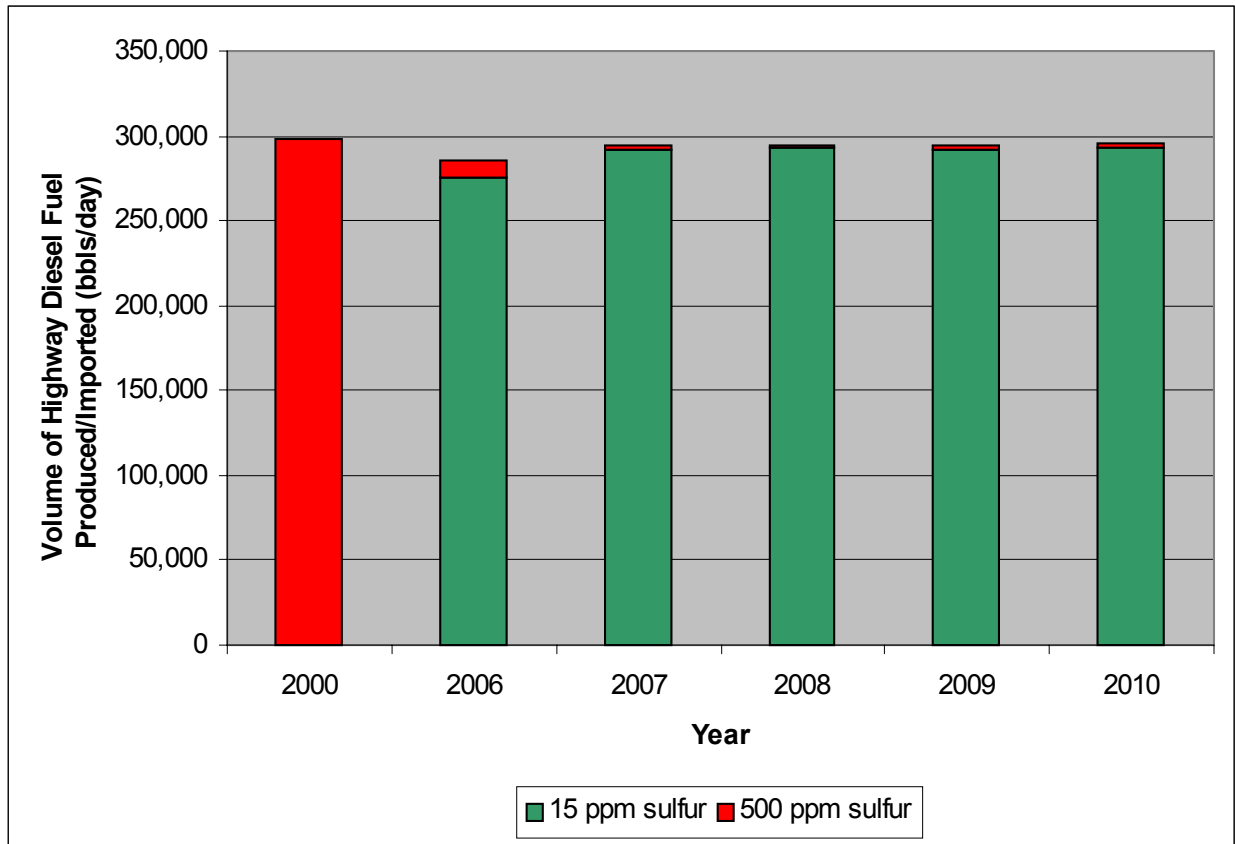
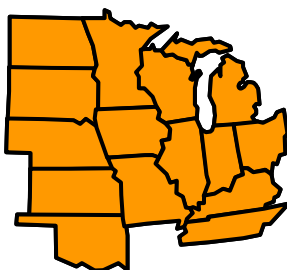


Figure 8. PADD 1 Projected Highway Diesel Fuel Production 2006-2010

2. PADD 2



Number of Refineries

Reported totals for all PADD 2 refineries and importers are summarized in Tables 13 and 14, below. These tables show that for 2006, the first year of the TCO, 24 refineries reported that they intend to produce an estimated volume of 739 thousand bbls/day total (15 ppm sulfur + 500 ppm sulfur) highway diesel fuel. Specifically, 16 refineries reported that they intend to produce 100 percent of their highway diesel fuel with 15 ppm or less of sulfur, three refineries intend to produce 100 percent of their highway diesel fuel at the 500 ppm sulfur level, and five refineries intend to produce a mix of 15 ppm sulfur and 500 ppm sulfur highway diesel fuel. Nineteen refineries reported that they intend to produce more highway diesel fuel than they did in 2000, including one refinery that produced no highway diesel fuel in 2000. On the other hand, only six refineries intend to produce less highway diesel fuel than they did in 2000, including one refinery that intends to temporarily shift out of the highway diesel fuel market.

During 2010, the last year of the TCO, the one refinery that produced highway diesel fuel in 2000 but shifted out of the highway market in 2006 shifts back into the highway diesel fuel market with all of its highway diesel fuel production meeting the 15 ppm sulfur standard.

Production of Highway Diesel Fuel

As shown in Figure 9, below, the 19 refineries planning to produce more highway diesel fuel than they did in 2000 reported a cumulative increase in their highway diesel fuel production volume of approximately 127 thousand bbls/day, and the six refineries planning to produce less highway diesel fuel than they did in 2000 reported a cumulative decrease in their highway diesel fuel production volume of approximately 42 thousand bbls/day. This results in a net increase of 85 thousand bbls/day of highway diesel fuel production. In 2010, the net increase is approximately 164 thousand bbls/day – almost double the net increase in production for 2006.

Availability of 15 ppm Sulfur Highway Diesel Fuel

As shown in Figure 10, below, in 2006, approximately 696 thousand bbls/day, or 94 percent of the PADD 2 total, are anticipated to be 15 ppm sulfur highway diesel fuel, and the remaining 44 thousand bbls/day, or six percent of the PADD 2 total, are anticipated to be 500 ppm sulfur highway diesel fuel.

Summary and Analysis of the Highway Diesel Fuel 2003 Pre-compliance Reports – October 2003

Projected Credits Generation and Use

In 2006, approximately 985 million-gallon credits are anticipated to be generated, and only approximately 63 million-gallon credits are anticipated to be used to yield a net amount of 922 million-gallon credits generated.

Table 13. PADD 2 Highway Diesel Fuel Refinery Statistics 2006-2010

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	24	24	24	24	24	25
# refineries at 100% 15 ppm		16	16	16	16	17
# refineries at 100% 500 ppm	24	3	3	3	3	3
# refineries with 15/500 ppm mix		5	5	5	5	5
# refineries increasing production		19	19	18	19	20
# refineries shifting into the highway market		1	1	1	1	1
# refineries decreasing production		6	6	7	6	5
# refineries shifting out of the highway market		1	1	1	1	0
# refineries generating credits		14	13	13	13	
# refineries using credits		2	2	2	2	2

Table 14. PADD 2 Highway Diesel Fuel Volume and Credit Statistics 2006-2010

Year	2000	2006	2007	2008	2009	2010
total 15 ppm, bbls/day		695,585	726,075	721,977	729,701	778,886
total 500 ppm, bbls/day	654,137	43,877	40,404	40,414	40,203	39,156
15 + 500 ppm total, bbls/day	654,137	739,461	766,479	762,391	769,904	818,042
net volume change vs. 2000, bbls/day		85,324	112,342	108,254	115,767	163,905
% change from 2000 highway volume		13.0	17.2	16.5	17.7	25.1
% 500 of total 15 + 500 ppm	100.0	5.9	5.3	5.3	5.2	4.8
credit generation, bbls/day		109,582	111,743	110,788	112,941	
credit usage, bbls/day		7,016	7,083	7,091	7,083	7,228

II. Summary Statistics - PADD Analysis

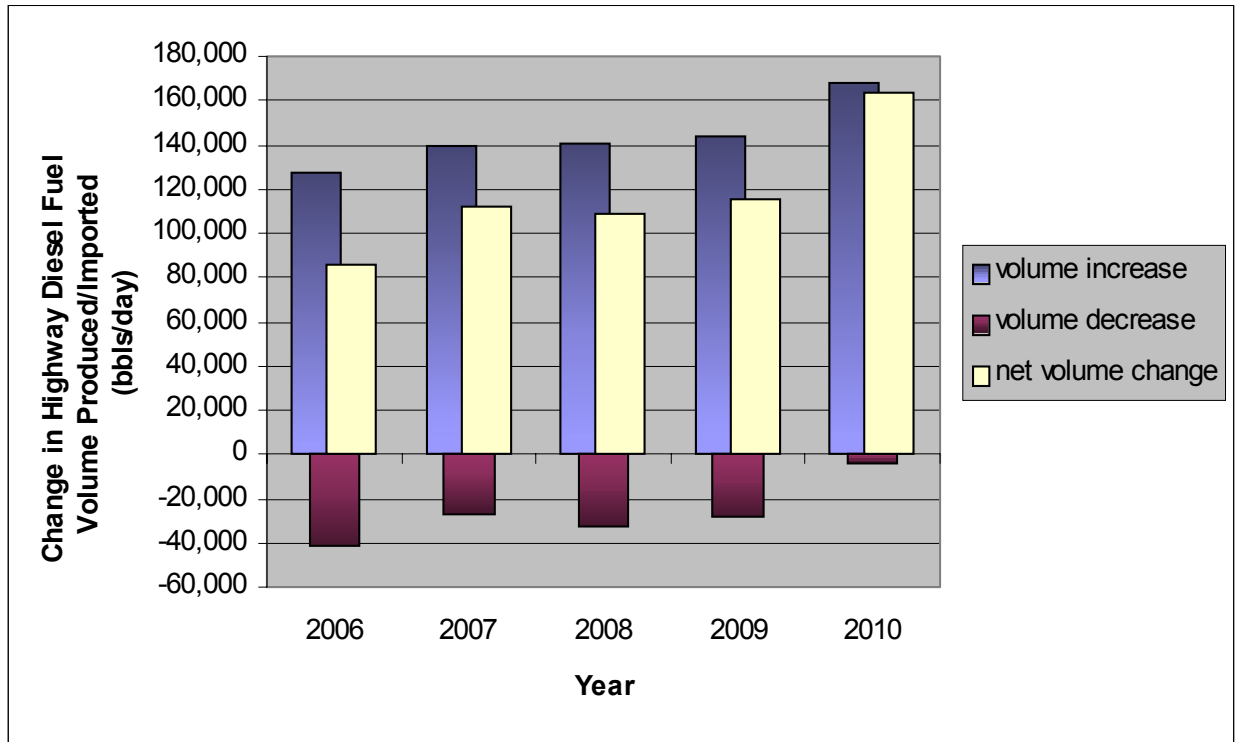


Figure 9. PADD 2 Highway Diesel Fuel Volume Change vs. 2000

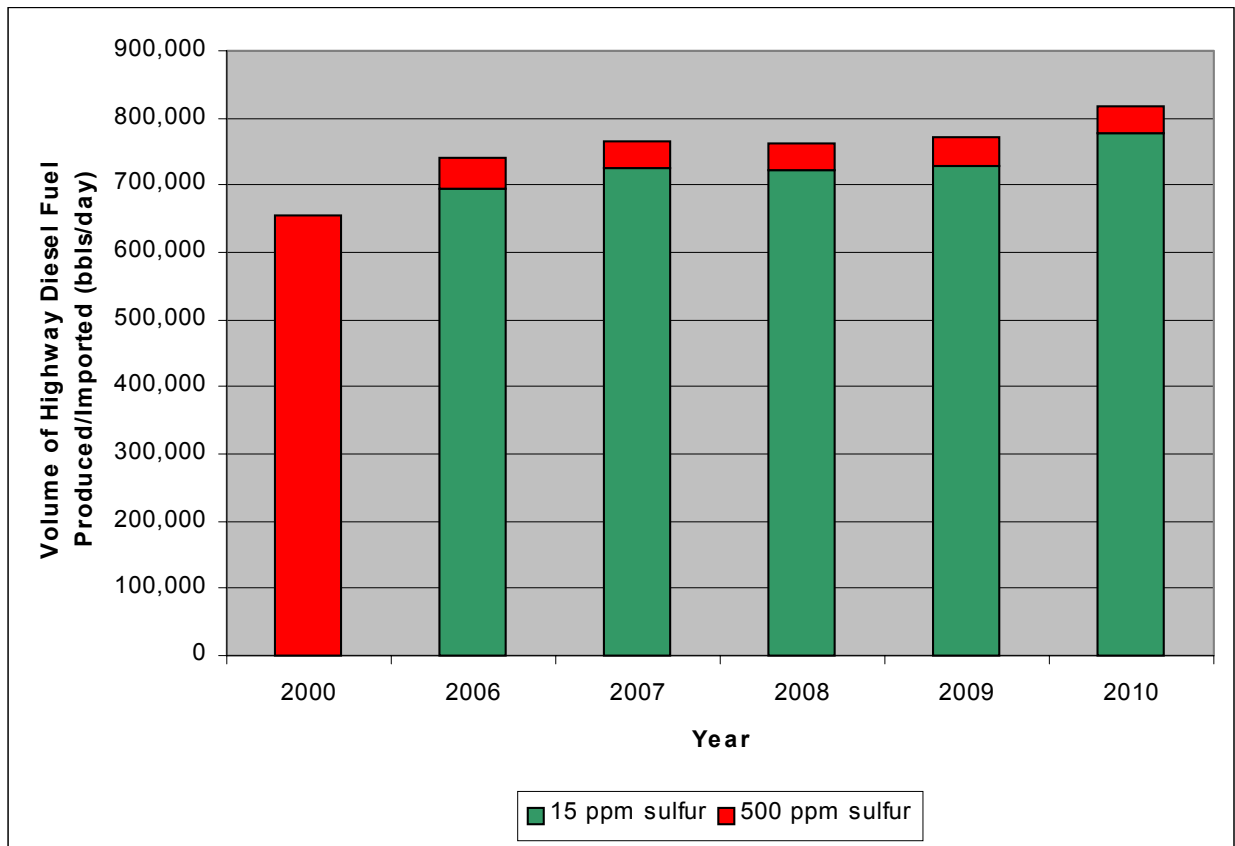
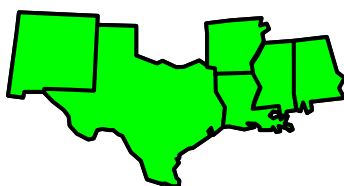


Figure 10. PADD 2 Projected Highway Diesel Fuel Production 2006-2010

3. PADD 3



Number of Refineries

Reported totals for all PADD 3 refineries and importers are summarized in Tables 15 and 16, below. These tables show that for the first year of the TCO (2006), 39 refineries reported that they intend to produce an estimated volume of 1.3 million bbls/day total (15 ppm sulfur + 500 ppm sulfur) highway diesel fuel. Specifically, 29 refineries reported that they intend to produce 100 percent of their highway diesel fuel with 15 ppm or less of sulfur, four refineries intend to produce 100 percent of their highway diesel fuel at the 500 ppm sulfur level, and six refineries intend to produce a mix of 15 ppm sulfur and 500 ppm sulfur highway diesel fuel. In 2006, 23 refineries reported that they intend to produce more highway diesel fuel than they did in 2000, including one refinery that produced no highway diesel fuel in 2000. Twenty refineries intend to produce less highway diesel fuel than they did in 2000. This includes four refineries that intend to shift out of the highway diesel fuel market. However, one of these four refineries only shifts out of the market temporarily as it plans to shift back into it in 2008 and two of the four refineries intend to transport diesel fuel to other refineries for desulfurization to 15 ppm sulfur or less.

In 2010, the number of refineries producing highway diesel fuel increases by two as one refinery shifts back into the market after temporarily shifting out of it in 2006 and one additional refinery shifts into the highway diesel fuel market for the first time.

Highway Diesel Fuel Production

As shown in Figure 11, below, the 23 refineries planning to produce more highway diesel fuel than they did in 2000 reported a cumulative increase in their highway diesel fuel production volume of approximately 401 thousand bbls/day, and the 20 refineries planning to produce less highway diesel fuel than they did in 2000 reported a cumulative decrease in their highway diesel fuel production volume of approximately 197 thousand bbls/day. This results in a net increase of 205 thousand bbls/day of highway diesel fuel production. In 2010, the net increase is approximately 442 thousand bbls/day – more than double the net increase in production for 2006.

Availability of 15 ppm Sulfur Highway Diesel Fuel

As shown in Figure 12, below, in 2006, approximately 1.3 million bbls/day, or 97 percent of the PADD 3 total, are anticipated to be 15 ppm sulfur highway diesel fuel, and the remaining three percent is anticipated to be 500 ppm sulfur highway diesel fuel.

Summary and Analysis of the Highway Diesel Fuel 2003 Pre-compliance Reports – October 2003

Credit Generation and Use

In 2006, approximately 2.2 billion-gallon credits are anticipated to be generated, and only approximately 140 million-gallon credits are anticipated to be used to yield a net amount of 2,060 million-gallon credits generated.

Table 15. PADD 3 Highway Diesel Fuel Refinery Statistics 2006-2010

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	42	39	39	40	40	41
# refineries at 100% 15 ppm		29	29	31	31	34
# refineries at 100% 500 ppm	42	4	3	3	3	3
# refineries with 15/500 ppm mix		6	7	6	6	4
# refineries increasing production		23	25	26	25	30
# refineries shifting into the highway market		1	1	1	1	2
# refineries decreasing production		20	18	17	18	14
# refineries shifting out of the highway market		4	4	3	3	3
# refineries generating credits		25	25	26	26	
# refineries using credits		3	3	3	3	2

Table 16. PADD 3 Highway Diesel Fuel Volume and Credit Statistics 2006-2010

Year	2000	2006	2007	2008	2009	2010
total 15 ppm, bbls/day		1,278,380	1,348,552	1,392,153	1,391,643	1,530,579
total 500 ppm, bbls/day	1,118,549	44,777	48,506	48,518	48,490	29,934
15 + 500 ppm total, bbls/day	1,118,549	1,323,157	1,397,058	1,440,671	1,440,133	1,560,513
net volume change vs. 2000, bbls/day		204,608	278,509	322,122	321,584	441,964
% change from 2000 highway volume		18.3	24.9	28.8	28.8	39.5
% 500 of total 15 + 500 ppm	100.0	3.4	3.5	3.4	3.4	1.9
credit generation, bbls/day		240,725	252,152	260,988	260,612	
credit usage, bbls/day		15,605	16,605	16,616	16,605	13,272

II. Summary Statistics - PADD Analysis

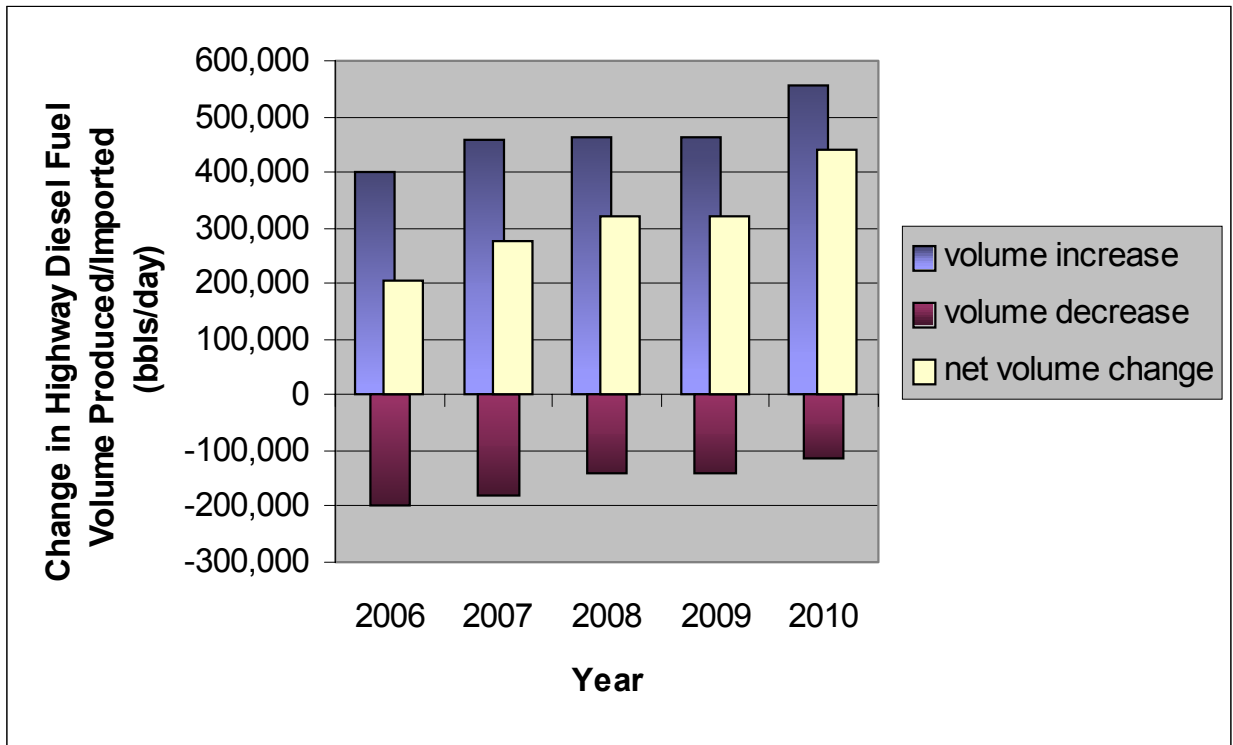


Figure 11. PADD 3 Highway Diesel Fuel Volume Change vs. 2000

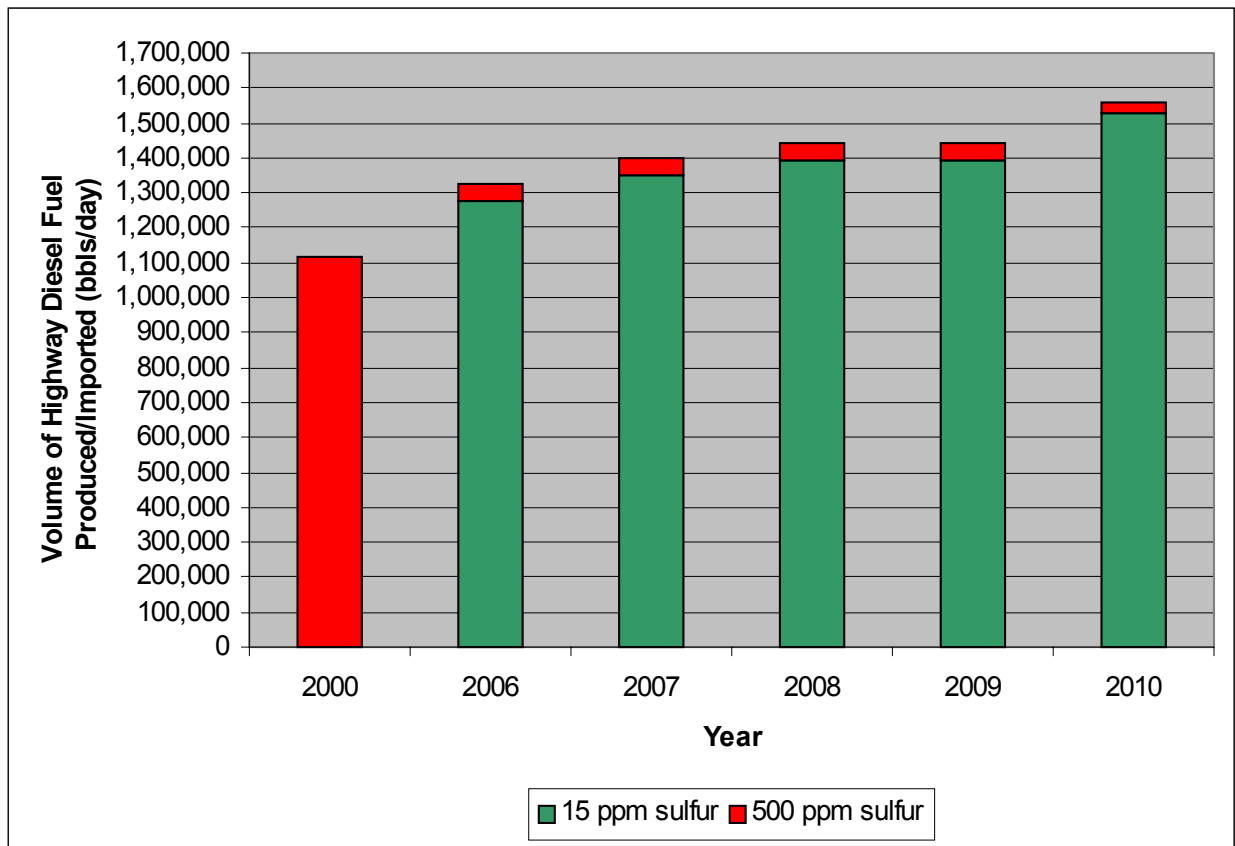
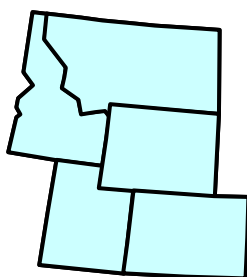


Figure 12. PADD 3 Projected Highway Diesel Fuel Production 2006-2010

4. PADD 4



Number of Refineries

Reported totals for all PADD 4 refineries and importers are summarized in Tables 17 and 18, below. These tables show that for the first year of the TCO (2006), 15 refineries reported that they intend to produce an estimated volume of 118 thousand bbls/day total (15 ppm sulfur + 500 ppm sulfur) highway diesel fuel. Specifically, 10 refineries reported that they intend to produce 100 percent of their highway diesel fuel with 15 ppm or less of sulfur, two refineries intend to produce 100 percent of their highway diesel fuel at the 500 ppm sulfur level, and three refineries intend to produce a mix of 15 ppm sulfur and 500 ppm sulfur highway diesel fuel. In 2006, eight refineries reported that they intend to produce more highway diesel fuel than they did in 2000, including one refinery that produced no highway diesel fuel in 2000. Seven refineries intend to produce less highway diesel fuel than they did in 2000.

Highway Diesel Fuel Production

As shown in Figure 13, below, in 2006, the eight refineries planning to produce more highway diesel fuel than they did in 2000 reported a cumulative increase in their highway diesel fuel production volume of approximately 22 thousand bbls/day, and the seven refineries planning to produce less highway diesel fuel than they did in 2000 reported a cumulative decrease in their highway diesel fuel production volume of approximately 25 thousand bbls/day. This results in a net decrease in production of approximately three thousand bbls/day. After 2006, the net production volume of highway diesel fuel relative to 2000 switches to slightly positive through 2010.

While these results indicate that there will be a reduction in the production of highway diesel fuel in PADD 4 in 2006, this reduction is not of great concern given the movement of fuel between PADDs 2 and 4. In the year 2000, PADD 2 supplied approximately 32 thousand bbls/day of highway diesel fuel (or five percent of its highway diesel fuel production)ⁿ⁸ to PADD 4. The projected production decrease of three thousand bbls/day in PADD 4 represents only 10 percent of the amount of highway diesel fuel that was shipped from PADD 2 to PADD 4 in

ⁿ This is consistent with the historical trend. Based on data from EIA's Petroleum Supply Annual, 44 percent of the highway diesel fuel produced in PADD 3 was shipped to PADD 1, on average, from 1995 through 2002.

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2000. In addition, the net production increase in PADD 2, which is projected to be 85 thousand bbls/day, far outweighs the net decrease of three thousand bbls/day which is projected in PADD 4. Therefore, PADD 2 appears to be fully capable of addressing the small reported decrease in PADD 4 production.

Availability of 15 ppm Sulfur Highway Diesel Fuel

As shown in Figure 13, below, in 2006, approximately 111 thousand bbls/day, or 94 percent of the PADD 4 total, are anticipated to be 15 ppm sulfur highway diesel fuel, and the remaining seven thousand bbls/day, or six percent of the PADD 4 total, are anticipated to be 500 ppm sulfur highway diesel fuel. In 2010, the percentage of highway diesel fuel at the 15 ppm sulfur standard is expected to increase to 99 percent of the total volume highway diesel fuel produced in PADD 4.

Credit Generation and Use

As shown in Figure 14, below, in 2006, approximately 45 million credits are anticipated to be generated and no credits are anticipated to be used. Note that in 2006 two refineries have indicated that they intend to produce all of their highway diesel at the 500 ppm sulfur level but no credits are anticipated to be used. These refineries are owned by small refiners. Under the 500 ppm option, small refiners may continue producing all of their highway diesel fuel at the 500 ppm sulfur standard without be required to purchase credits to do so as other refiners are under the TCO.

II. Summary Statistics - PADD Analysis

Table 17. PADD 4 Highway Diesel Fuel Refinery Statistics 2006-2010

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	14	15	15	15	15	15
# refineries at 100% 15 ppm		10	12	12	13	14
# refineries at 100% 500 ppm	14	2	2	2	2	1
# refineries with 15/500 ppm mix		3	1	1	0	0
# refineries increasing production		8	8	8	8	8
# refineries shifting into the highway market		1	1	1	1	1
# refineries decreasing production		7	7	7	7	7
# refineries shifting out of the highway market		0	0	0	0	0
# refineries generating credits		2	2	2	2	
# refineries using credits		0	0	0	0	0

Table 18. PADD 4 Highway Diesel Fuel Volume and Credit Statistics 2006-2010

Year	2000	2006	2007	2008	2009	2010
total 15 ppm, bbls/day		110,767	117,810	118,305	118,379	119,807
total 500 ppm, bbls/day	120,874	7,027	3,220	3,222	3,197	1,249
15 + 500 ppm total, bbls/day	120,874	117,795	121,030	121,527	121,576	121,056
net volume change vs. 2000, bbls/day		-3,079	156	654	702	183
% change from 2000 highway volume		-2.5	0.1	0.5	0.6	0.2
% 500 of total 15 + 500 ppm	100.0	6.0	2.7	2.7	2.6	1.0
credit generation, bbls/day		4,972	5,187	5,192	5,207	
credit usage, bbls/day		0	0	0	0	0

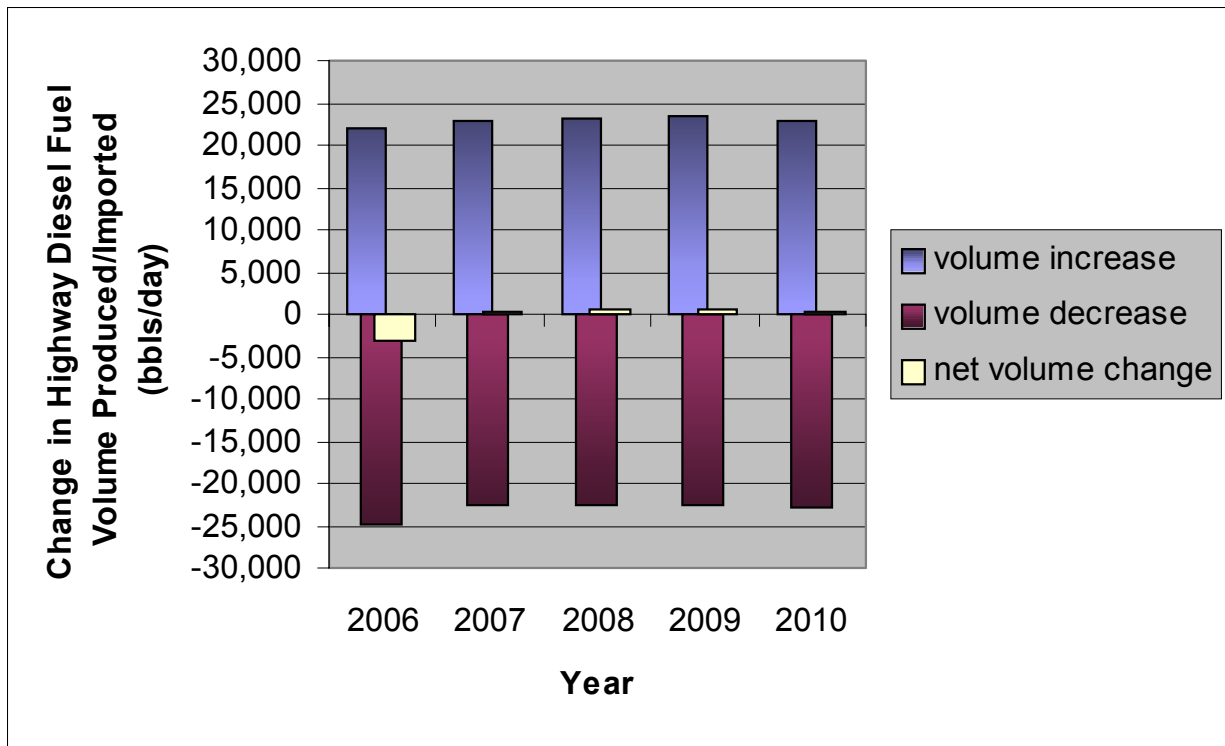


Figure 13. PADD 4 Highway Diesel Fuel Volume Change vs. 2000

II. Summary Statistics - PADD Analysis

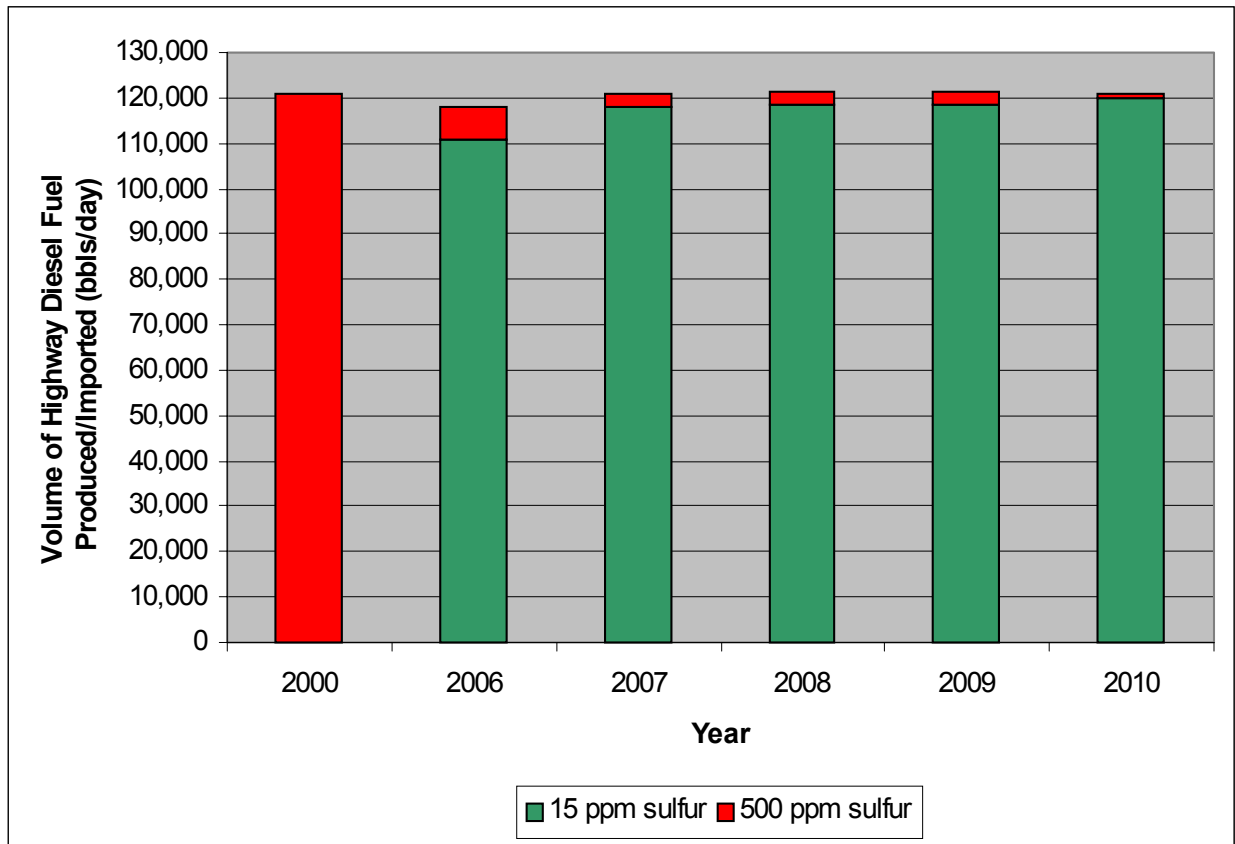
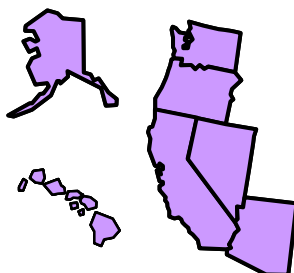


Figure 14. PADD 4 Projected Highway Diesel Fuel Production 2006-2010

5. PADD 5^o



Number of Refineries

Reported totals for all PADD 5 refineries and importers are summarized in Tables 19 and 20, below. These tables show that for the first year of the TCO (2006), 21 refineries reported that they intend to produce an estimated volume of 395 thousand bbls/day total (15 ppm sulfur + 500 ppm sulfur) highway diesel fuel. Specifically, 16 refineries reported that they intend to produce 100 percent of their highway diesel fuel with 15 ppm or less of sulfur, one refinery intends to produce 100 percent of its highway diesel fuel at the 500 ppm sulfur level, and four refineries intend to produce a mix of 15 ppm sulfur and 500 ppm sulfur highway diesel fuel. In 2006, 17 refineries reported that they intend to produce more highway diesel fuel than they did in 2000, including one refinery that produced no highway diesel fuel in 2000. Six refineries intend to produce less highway diesel fuel than they did in 2000, including two refineries that intend to shift out of the highway diesel fuel market.

Highway Diesel Fuel Production

As shown in Figure 15, below, the 17 refineries planning to produce more highway diesel fuel than they did in 2000 reported a cumulative increase in their highway diesel fuel production volume of approximately 83 thousand bbls/day, and the six refineries planning to produce less highway diesel fuel than they did in 2000 reported a cumulative decrease in their highway diesel fuel production volume of approximately 39 thousand bbls/day. This results in a net increase in production of 44 thousand bbls/day. In 2010, the net increase in production is projected to be 54 thousand bbls/day.

^o The six refineries located in Alaska are not included in this report for the year 2000 or 2006-2010. The State of Alaska is currently exempt from the 500 ppm sulfur standard for highway diesel fuel. Therefore, it is not possible to determine, based on EIA data, the specific portion of each Alaskan refinery's distillate fuel production that is consumed by highway vehicles. Based on the 2003 pre-compliance reports, at least one refinery in Alaska is planning to produce some 15 ppm sulfur diesel fuel beginning in 2006. Other refiners appear to be planning to supply highway diesel fuel from refineries located outside of Alaska.

II. Summary Statistics - PADD Analysis

Availability of 15 ppm Sulfur Highway Diesel Fuel

As shown in Figure 16, below, in 2006, approximately 380 thousand bbls/day, or 96 percent of the PADD 5 total, are anticipated to be 15 ppm sulfur highway diesel fuel, and the remaining 16 thousand bbls/day, or four percent of the PADD 5 total, are anticipated to be 500 ppm sulfur highway diesel fuel. In 2010, the percentage of highway diesel fuel at the 15 ppm sulfur standard is expected to increase to 98 percent of the total volume highway diesel fuel produced in PADD 5.

Credit Generation and Use

In 2006, approximately 87 million credits are anticipated to be generated and no credits are anticipated to be used.

Table 19. PADD 5 Highway Diesel Fuel Refinery Statistics 2006-2010

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	22	21	21	21	21	21
# refineries at 100% 15 ppm		16	16	16	16	17
# refineries at 100% 500 ppm	22	1	1	1	1	1
# refineries with 15/500 ppm mix		4	4	4	4	3
# refineries increasing production		17	18	18	18	18
# refineries shifting into the highway market		1	1	1	1	1
# refineries decreasing production		6	5	5	5	5
# refineries shifting out of the highway market		2	2	2	2	2
# refineries generating credits		4	4	4	4	
# refineries using credits		1	1	1	1	1

Table 20. PADD 5 Highway Diesel Fuel Volume and Credit Statistics 2006-2010

Year	2000	2006	2007	2008	2009	2010
total 15 ppm, bbls/day		379,633	390,675	394,230	390,088	398,624
total 500 ppm, bbls/day	351,442	15,774	16,216	16,181	16,256	7,175
15 + 500 ppm total, bbls/day	351,442	395,407	406,892	410,411	406,344	405,799
net volume change vs. 2000, bbls/day		43,965	55,450	58,969	54,902	54,357
% change from 2000 highway volume		12.5	15.8	16.8	15.6	15.5
% 500 of total 15 + 500 ppm	100.0	4.0	4.0	3.9	4.0	1.8
credit generation, bbls/day		9,684	9,679	9,692	9,679	
credit usage, bbls/day		1,357	1,102	939	1,246	520

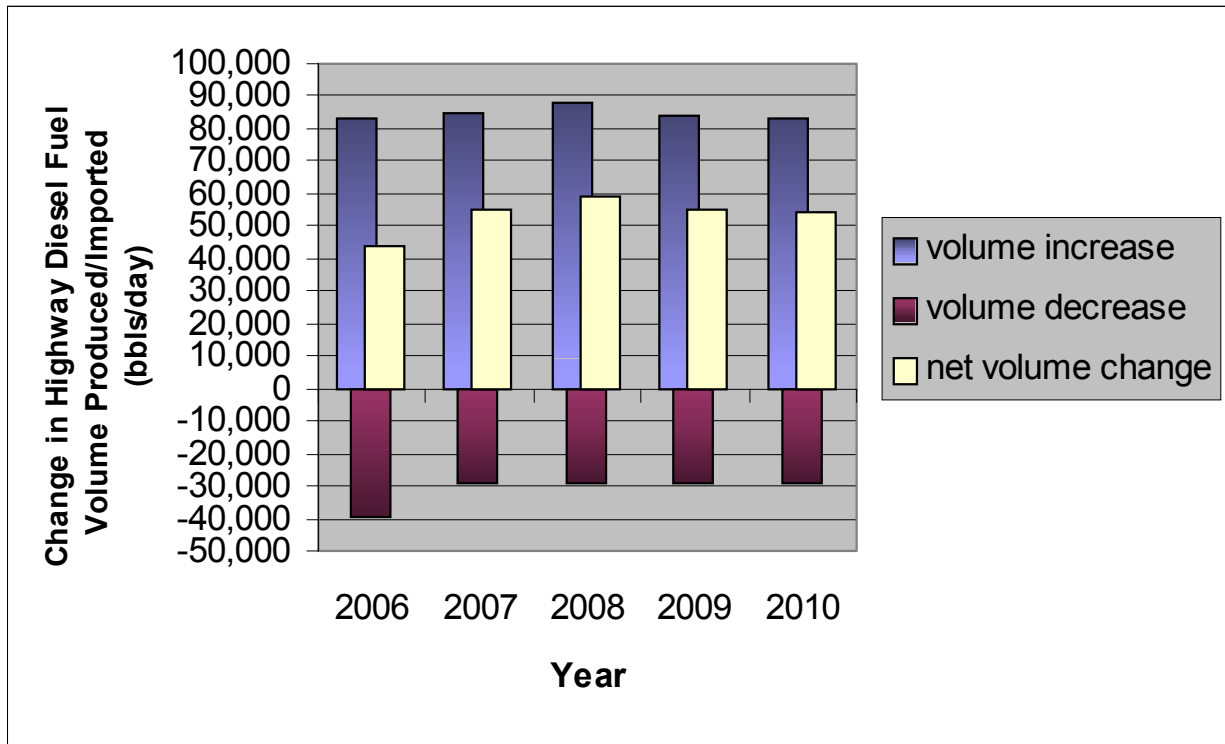


Figure 15. PADD 5 Highway Diesel Fuel Volume Change vs. 2000

II. Summary Statistics - PADD Analysis

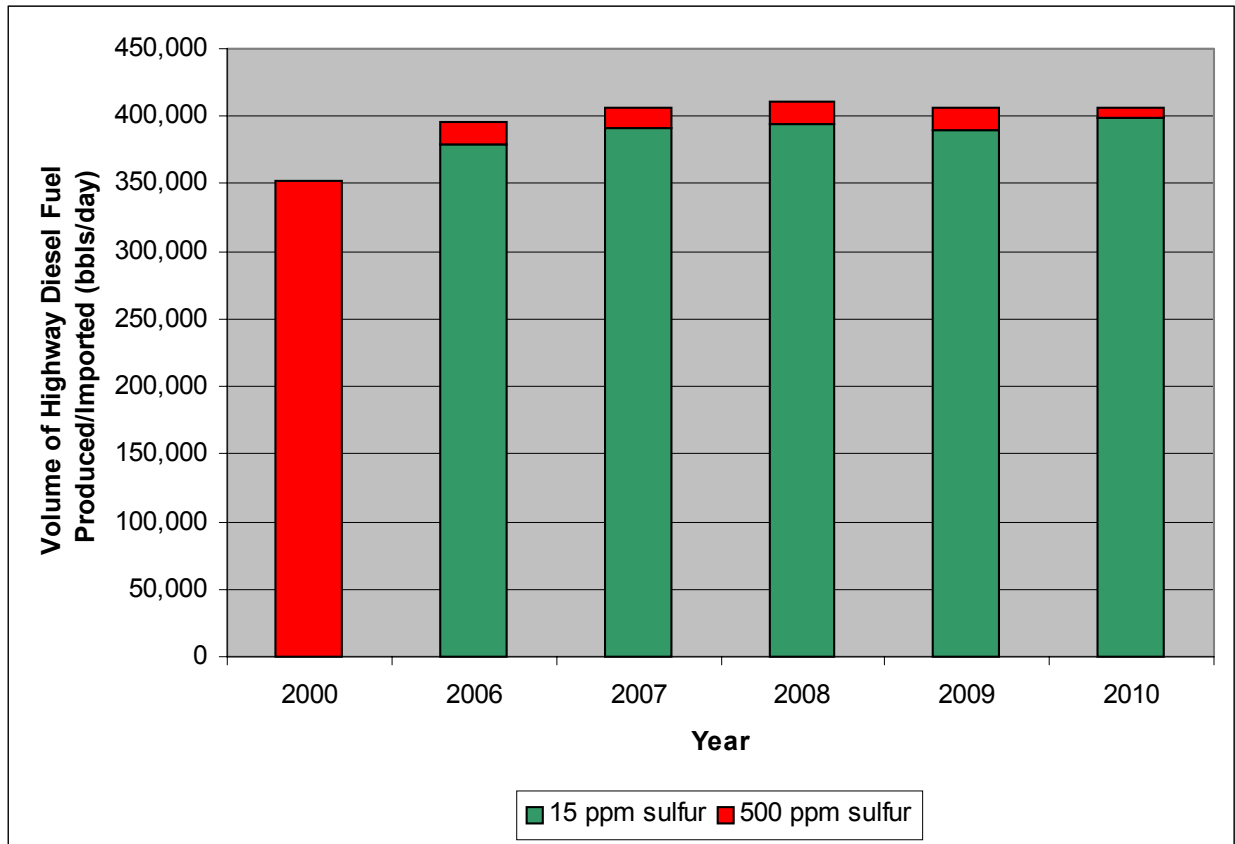


Figure 16. PADD 5 Projected Highway Diesel Fuel Production 2006-2010

Appendix: List of Acronyms

AEO	Annual Energy Outlook
EIA	Energy Information Administration
EPA or the Agency	U.S. Environmental Protection Agency
FR	Federal Register
GPA	Geographic Phase-in Area
PADD	Petroleum Administrative Districts for Defense
ppm	parts-per-million
TCO	Temporary Compliance Option

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