

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA 2004-17015; Notice 2]

Nissan North America, Inc.;
Petition for Exemption from Two-Fleet Rule Affecting Compliance
with Passenger Automobile Fuel Economy Standards

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Grant of petition for exemption from two-fleet rule.

SUMMARY: Nissan North America, Inc. (Nissan) filed a petition requesting exemption from the two-fleet rule for the 2006-2010 model years. The two-fleet rule, which is contained in the corporate average fuel economy (CAFE) statute, requires that a manufacturer divide its passenger automobiles into two fleets, a domestically-manufactured fleet and a non-domestically manufactured fleet, and ensure that each fleet separately meets the CAFE standards for passenger automobiles.

Nissan filed the petition because a change under the statute in the treatment of value added to a vehicle in Mexico will cause one of that company's passenger automobiles, which is manufactured in Mexico, to be reclassified from non-domestic to domestic. The loss of these automobiles, which are relatively fuel-efficient, will cause its non-domestic fleet to fail to comply with the CAFE standards for passenger automobiles.

The CAFE statute requires the agency to grant such a petition unless it finds that doing so would result in reduced employment in the U.S. related to motor vehicle manufacturing. To determine if such a reduction would result, NHTSA compared vehicle prices and sales under two scenarios: a baseline scenario in which Nissan would not have

an exemption and would need either to pay penalties for noncompliance or adopt any one of a number of optional courses of action to achieve compliance; and a scenario in which Nissan would have an exemption and would not bear any of the costs of the baseline scenario. The agency then attempted to estimate the effect of the sales changes on employment for each of the options. The analysis indicated virtually no employment effect for the option most likely (on the basis of cost) to be chosen by Nissan and only slight negative employment effects for the other options.

Nissan also pointed out employment effects that are not accounted for in our economic analysis. If we deny the petition, Nissan would likely purchase fewer parts from U.S. suppliers and more parts from foreign suppliers in order to recontent one of its vehicles. The result would be fewer American workers producing components to be used in Nissan cars. We are unable to quantify with precision the number of jobs potentially lost from denying the petition. It is likely, however, that more jobs would be lost if we deny the petition than would be lost if we grant it.

In sum, the evidence does not support a finding that granting the petition would reduce motor vehicle manufacturing employment in the U.S. The evidence suggests instead that granting the petition would likely help retain American jobs that might otherwise be sent overseas. Accordingly, the agency will permit Nissan to combine its domestic and non-domestic passenger automobile fleet for model years 2006-2010.

DATES: *EFFECTIVE DATE:* October 1, 2005

SUPPLEMENTARY INFORMATION:

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 - I. Glossary

We are providing a glossary to define some of the key terms in this notice. Some of the terms are used in a way that is broader (domestic automobile and domestic content) or narrower (non-domestic automobile and non-domestic content) than the meaning they are given in the dictionary or common usage. Most notably, “domestic content” refers to content from not only the U.S., but also Canada and, beginning in the next model year, Mexico as well. Thus, beginning in the 2005 model year, “non-domestic content” will refer to content from countries other than the U.S., Canada and Mexico. In other words, domestic content will mean North American content.

These departures from ordinary meaning are necessary because of the special meaning given the terms by statute. In particular, their meanings are governed by the provisions of the CAFE statute, i.e., the Energy Policy and Conservation Act (EPCA), as modified by the Automotive Fuel Efficiency Act of 1980 and the 1994 amendments implementing the North American Free Trade Agreement (NAFTA).

As used in this notice, these terms have the following meanings:

Assembly: a part of an automobile made within the U.S., Canada, or Mexico whose component parts are substantially transformed by the manufacturing process into a new and different article of commerce.

Baseline scenario: the state of the world if Nissan does not have an exemption during model years 2006-2010.

Domestic content: beginning in model year 2005, components that are wholly grown, produced or manufactured in the U.S., Canada or Mexico or substantially transformed during the manufacturing process in the U.S., Canada or Mexico into a new and different article of commerce.

Domestic passenger automobile: a passenger automobile with 75 percent or more domestic content.

Exemption scenario: the state of the world if Nissan has an exemption during model years 2006-2010.

Non-domestic passenger automobile: a passenger automobile with less than 75 percent domestic content.

North America: within the borders of U.S., Canada, or Mexico.

Recontenting: replacing domestic content of a passenger automobile with non-domestic content for the purpose of causing the automobile to be classified as a non-domestic automobile.

II. Statutory Background of the Two-fleet Rule

A. Energy Policy and Conservation Act, as Originally Enacted in 1975

In 1975, Congress enacted the Energy Policy and Conservation Act (EPCA), mandating that passenger automobiles and non-passenger automobiles meet CAFE standards. Pub. L. No. 94-163. *See 49 U.S.C. 32901 et seq.* When Congress was considering EPCA, it was concerned that U.S. manufacturers might aid their efforts to comply with the standards by importing and selling increasing numbers of fuel-efficient passenger automobiles manufactured abroad. The importation and sale by U.S. manufacturers of such passenger automobiles would have helped them to meet fuel economy standards, but at the cost of decreasing employment in the U.S. automobile industry. To forestall this possibility, Congress adopted a provision, known as the “two-fleet rule,” requiring that each manufacturer’s passenger automobiles be separated into

two fleets, domestic and non-domestic, and that each of the fleets separately comply with the fuel economy standards for passenger automobiles. *See 49 U.S.C. 32904(b)(1)*.

Under the “two-fleet rule,” as enacted in 1975, an automobile was considered to be domestically manufactured, and included in a manufacturer’s domestic fleet, if at least 75% of cost to the manufacturer of manufacturing the automobile was attributable to value added in the U.S. or Canada. The rule treated passenger automobiles not meeting this 75% threshold as non-domestically manufactured, even if they were assembled in the U.S. or Canada.

B. 1980 Amendments

The two-fleet rule initially did not affect foreign manufacturers of passenger automobiles. All of their automobiles were manufactured abroad using assemblies and parts made abroad and thus were classified as non-domestic.

However, within several years of the enactment of EPCA, one foreign manufacturer, Volkswagen, began manufacturing passenger automobiles in the U.S. Although these passenger automobiles were assembled in the U.S., and a significant portion of their content was domestic, they were treated as non-domestic because they had less than 75% of their value added in the U.S. or Canada.

These passenger automobiles, which were more fuel-efficient than other Volkswagen’s non-domestic passenger automobiles, helped Volkswagen’s overall non-domestic fleet comply with CAFE standards. Although using U.S. or Canadian components might have been cheaper than using non-domestic ones, Volkswagen restricted the use of U.S. or Canadian components in those passenger automobiles to keep

those U.S.-built passenger automobiles from switching from non-domestic to domestic under the two-fleet rule.

Volkswagen's restricting the use of parts made or assembled in the U.S. or Canada in passenger automobiles produced in a U.S. assembly plant demonstrated that the two-fleet rule, which was intended to prevent job losses in the U.S. automobile industry, could also operate to prevent increases in new U.S. jobs. Foreign manufacturers wishing to avoid undesirable impacts of the two-fleet rule might either limit or forego the use of U.S. or Canadian parts in passenger automobiles manufactured in U.S. plants or simply choose not to invest in building those plants.¹

Concerned that the two-fleet rule might have the unintended effect of discouraging foreign manufacturers from producing passenger automobiles in the U.S. or encouraging them to limit artificially the amount of U.S. or Canadian parts if they did, Congress authorized exemptions from the two-fleet rule in the Automotive Fuel Efficiency Act of 1980 (1980 amendments). (Pub. L. No. 96-425.) The amendments made manufacturers that either began manufacturing automobiles in the U.S. after December 22, 1975, and before May 1, 1980, or began manufacturing automobiles in the U.S. after April 30, 1980 and completed at least one model year of production before December 31, 1985 eligible to petition NHTSA for relief from the two-fleet rule. The amendments also provided that the agency must grant a manufacturer's petition unless it determines that doing so would result in reduced employment in the U.S. related to motor vehicle manufacturing.² *See 49 U.S.C. 32904(b)(6)(B).*³

¹ Conference Committee Report No. 96-1402. p. 12 (1980)

² We interpret "employment . . . related to motor vehicle manufacturing" as including employment directly as well as indirectly involved in motor vehicle manufacture. Senate Committee on Commerce, Science and Transportation, Senate Report No. 96-642, pp. 6-7. Both are fall within the broad standard of being

The agency must publish its decision whether to grant or deny a petition by the 90th day after the receipt of an exemption petition or the petition is deemed granted by operation of law. *See 49 U.S.C. 32904(b)(6)(C)*. To alleviate concerns that granting an exemption from the two-fleet rule might provide a foreign manufacturer with an opportunity to earn or use credits not available to its domestic counterparts, Congress also provided that any manufacturer receiving an exemption could not earn or use credits during any year that the exemption was in effect.⁴ *See 49 U.S.C. 32904(b)(8)*.

The 1980 amendments contained a number of other provisions intended to foster job growth in the U.S. motor vehicle industry. In an effort to foster joint ventures between U.S. and foreign manufacturers while providing opportunities for increased jobs in the U.S., the 1980 amendments allowed domestic manufacturers to include, on a one-time basis, up to 150,000 non-domestic passenger automobiles in their domestic fleets for up to four years if certain conditions were met. One of the conditions was that the automobiles have at least 50% domestic content in the first model year and 75% domestic content before the end of the 4th model year. *See 49 U.S.C. 32904(b)(5)*.

C. 1994 Amendments

In adopting legislation implementing the North American Free Trade Agreement (NAFTA), Congress amended the two-fleet rule in 1994 to provide, beginning not later

“related to motor vehicle manufacturing.” (Emphasis added.) Further, in its discussion of the background and need for the 1980 amendments, the House report on those amendments makes specific reference to employment in the supplier industry. House Committee on Interstate and Foreign Commerce, H. Rep. No. 96-1026, p. 10.

³ To ensure that granting an exemption actually achieved the desired effect of increasing employment, the 1980 amendments required that a report examining the effects of an exemption be included in the annual fuel economy report to Congress required by §32916(a). *See 49 U.S.C. 32916(b)*. However, Section 3003 of the Federal Reports Elimination and Sunset Act of 1995 (P.L. 104-66; 31 USC 1113 note) terminated the requirement that NHTSA file an annual fuel economy report as of December 21, 1999. This termination date was later changed to May 15, 2000 by §236 of the District of Columbia Appropriations Act of 2000 (P.L. 106-113; November 29, 1999).

⁴ H. Rep. No. 96-1026, p. 16.

than the 2005 model year, that a passenger automobile is considered to be “domestically manufactured” if at least 75 percent of the cost to the manufacturer of that automobile is attributable to value added in the U.S., Canada or Mexico. *See 49 U.S.C. 32904(b)(3)(A)*. Thus, beginning in that model year, value added in Mexico will no longer be treated as non-domestic content. Instead, it will be treated as domestic content.⁵

III. Nissan’s Petition for Exemption

A. Statutorily Caused Change in Sentra’s Classification from Non-domestic to Domestic

Nissan submitted a petition for exemption from the two-fleet rule on January 23, 2004. It requested exemption for the 2006-2010 model years or until circumstances remove the need for an exemption. Nissan noted that, beginning in the 2005 model year (MY), the Sentra, which is manufactured in Mexico, will switch from its non-domestic fleet to its domestic fleet because the value added in Mexico will change from non-domestic to domestic content. The Sentra is one of the more fuel-efficient passenger automobiles in Nissan’s current non-domestic fleet. This switch will lower the CAFE of Nissan’s non-domestic fleet below the CAFE standard for passenger automobiles and raise the CAFE of Nissan’s domestic fleet well above the standard.⁶

⁵ Consistent with the NAFTA amendments, the EPA regulations provide that for any model year commencing after January 1, 2004, components manufactured in the U.S., Canada, or Mexico will be considered to be domestic content for the purposes of determining if a vehicle manufactured in any of these three countries has sufficient domestic content to be classified as a domestic automobile. *See 40 CFR §600.511-80(b)(3)*. Therefore, for any model year beginning after January 1, 2004, vehicles with 75% or more of their content originating in North America, will be considered to be part of a manufacturer’s domestic fleet. Moreover, parts originating in Mexico will also be considered to be domestic content. Therefore, for any model year after January 1, 2004, a manufacturer wishing to keep its Mexican-built vehicles in its non-domestic fleet would need to replace North American components with ones manufactured outside of the U.S., Canada, or Mexico.

⁶ A manufacturer’s fuel economy performance is measured as a production-weighted harmonic average of the fuel economies of the vehicles in its fleet. In MY 2003, Nissan’s non-domestic fleet consisted of two 350Z variants (24.8 and 26 mpg), the Infiniti G35 (26 mpg), the Infiniti G35 (24.6 mpg), the Infiniti I35 (25.9 mpg), the Infiniti M45 (23 mpg), the Infiniti Q45 (23 mpg), two versions of the Maxima (27.7 and 25.9 mpg), and five versions of the Sentra (30.3, 36.8, 30.1, 28.8 and 36.1 mpg). Nissan’s non-domestic

Nissan said:

* * * [I]t may be forced to decrease domestic content and outsource the production of one or all of its domestically manufactured vehicles—i.e., the Sentra, Altima or Maxima—in order to offset this imbalance. Decreasing the domestic content level of the Sentra could result in a decrease in the use of U.S.-made components, such as radiators, air conditioners, suspensions, engine parts and some engines, currently used in the Sentra. Likewise, decreasing the domestic content level of the Altima or Maxima, which currently make up Nissan's domestic fleet, would mean decreasing production at NNA's [Nissan's] Smyrna, Tennessee plant and reducing domestic engine production at the Decherd, Tennessee plant. Such reductions in domestic production of the Altima or Maxima could likely lead to reduction in employment at Nissan's Tennessee plants. Accordingly, an exemption from the [two-fleet] provision is necessary for Nissan to maintain existing levels of Sentra production in Mexico, and Altima and Maxima production at Smyrna, Tennessee, as well as the corresponding levels of engine and component production in Decherd, Tennessee. (at 4)

Nissan said further:

[A]n exemption from separate calculations under the CAFE program will allow Nissan to continue its current pace of expansion in U.S. production in model years 2006-2010 and to increase the level of local content beyond 75% in additional vehicles, without becoming subject to CAFE penalties. Failure to grant the petition will force Nissan to reconsider the current ramp up in U.S. investment as resources are diverted from expansion in the United States to addressing the CAFE issue. (at 8)

B. Nissan's Assessment of Employment Impacts of Not Granting its Petition

Nissan's petition states that recontending some of its passenger automobiles would reduce employment by the U.S. automobile equipment suppliers (at 14). Although Nissan's petition did not provide any estimates of costs (or savings) that might be associated with any such recontending, the company later submitted data regarding this issue at NHTSA's request.

fleet CAFE was 27.4 mpg, one-tenth below the required passenger car standard of 27.5 mpg. Transfer of the Sentra to Nissan's domestic fleet would have caused Nissan's non-domestic fleet CAFE to fall further below the applicable standard. Confidential data submitted by Nissan indicates that the contribution made by the Sentra to the CAFE of its non-domestic fleet would become increasingly important in coming years.

Its petition also states (at 18) that even if the agency does not grant the requested exemption and the sale of Nissan's imported passenger automobiles decline as a result, "it is unlikely that domestic manufacturers would capture these lost sales" because "Nissan purchasers typically prefer import vehicles."

IV. Notice of Petition and Request for Comments

NHTSA published a notice announcing receipt of Nissan's petition on February 5, 2004 (69 FR 5654). The notice briefly summarized Nissan's petition and solicited comments on the effect that granting the petition might have on motor vehicle manufacturing related employment in the U.S. The notice discussed two approaches NHTSA might take in considering the Nissan petition. We described an analytic approach under which NHTSA would determine the difference between projected total motor vehicle-related employment in the U.S. if the petition were denied, and the projected total level of U.S. motor vehicle-related employment if the petition were granted.

The agency sought specific information from manufacturers of passenger automobiles within the same market segments as Nissan's passenger automobiles. In order to better assess Nissan's claim in its petition that removing domestic parts from a domestic vehicle model and substituting non-domestic parts – thereby moving domestic vehicles into its non-domestic fleet - would be prohibitively expensive, we asked manufacturers to provide information regarding costs or savings likely to result from different degrees of recontending.

We also solicited comments on the contention in Nissan's petition that it would be unlikely that domestic manufacturers would capture sales lost by Nissan if its petition

were denied and Nissan's vehicles became more expensive because "Nissan purchasers typically prefer import vehicles." We requested that commenters address the extent to which any such import buyer preference might be relevant to the post-2005 marketplace. In particular, we asked for information regarding any vehicle models expected to compete, even partially, with any Nissan passenger automobiles.

The notice also set forth and explained our preliminary determination that no environmental impact analysis would be required under existing law. We noted that although NHTSA prepared an environmental assessment of the effects of granting a Volkswagen petition under §32904(b)(6) in 1981, several U.S. Circuit Courts of Appeals have since held that compliance with the National Environmental Policy Act is unnecessary in instances in which an agency has little or no discretion regarding the decision it is making.⁷ We noted further that under the CAFE statute, the only issue the agency is permitted to consider in deciding whether to grant or deny Nissan's petition is the impact on U.S. automobile manufacturing-related employment. The notice observed that NHTSA is required to grant the petition unless it finds that doing so would reduce such employment. It noted further that if we took no action in the time prescribed by the statute, the statute provides that the petition is automatically granted. Accordingly, we concluded that granting the petition would not be a "major Federal action" within the meaning of NEPA.

The notice also set forth and explained our preliminary determination that no regulatory impact analysis, other than that specified in §32904(b)(6), would be required under existing law. We said that since our decision would not result in the issuance of a

⁷ *Citizens Against Rails-to-Trails v. Surface Transp. Bd.* 267 F.3d 1144, 1153 (D.C. Cir. 2001). *Sac & Fox Nation of Missouri v. Norton*, 240 F.3d 1250, 1262 (10th Cir.2001); *Sierra Club v. Babbitt*, 65 F.3d 1502, 1513 (9th Cir.1995)

“rule” within the meaning of the Administrative Procedure Act or Executive Order 12866, Regulatory Planning and Review, neither the requirements of the Executive Order nor those of the Department’s regulatory policies and procedures apply.

V. Public Comments Submitted in Response to Notice of Petition

NHTSA received two comments in response to its February 5, 2004 notice. The United Automobile Workers (UAW) filed comments. Three manufacturers, General Motors (GM), DaimlerChrysler (DC) and the Ford Motor Company (Ford), collaborated in the filing of a single joint set of comments. An array of elected officials, Governor Haley Barbour of Mississippi, Governor Phil Bredesen of Tennessee, U.S. Senators Trent Lott, William H. Frist, Lamar Alexander, and Thad Cochran, and U. S. Representatives Chip Pickering, Bart Gordon, and Lincoln Davis, also submitted letters, all of which supported Nissan’s petition.

Focusing on Nissan-related automotive employment in the U.S., the elected officials compared employment levels now, prior to the change in treatment of value added in Mexico, to employment levels that might exist after the change, in the absence of an exemption. Senators Lott and Cochran stated that automobile industry employment in the U.S. would suffer if Nissan were denied the exemption. In their view, denying the exemption would make it necessary for Nissan to pay CAFE civil penalties or reduce the domestic content of their vehicles. Either course would result in reduced automobile manufacturing employment in the U.S. However, they said that granting the exemption would allow Nissan to continue expansion of U.S. production and employment.

Senators Frist and Alexander submitted a joint letter expressing support for the Nissan petition. The letter stated that the impact of the NAFTA amendments could

reduce the amount of American components in Nissan's Mexican-built passenger automobiles or lead Nissan to reduce production of its U.S. built passenger automobiles. Either case would lead to U.S. job losses and harm to the U.S. automobile industry. The letter also said that the exemption provision in the 1980 amendments was created expressly to address the situation now faced by Nissan. Given Nissan's plans to expand U.S. production, both Senators indicated that granting the exemption would, in their view, further stimulate growth in the U.S. automobile industry.

The other elected officials, Governors Bredesen and Barbour and Representatives Pickering, Gordon, and Davis, expressed similar sentiments. Governors Bredesen and Barbour also supported granting Nissan's request on the grounds that doing so would increase employment in their states and the U.S. automobile industry as a whole.

The UAW submitted comments opposing Nissan's request. The UAW stated first that Nissan, like other manufacturers affected by the NAFTA amendments, had over ten years to plan for the change in treatment of value added in Mexico. Accordingly, the organization argued that Nissan should not be granted any special relief. The UAW also argued that Nissan could take other steps to avoid CAFE penalties besides seeking exemption for the two-fleet rule. One option suggested by the UAW was that Nissan could shift production of the 350ZX vehicles and its Infiniti line to the U.S. According to the UAW, such shifts would allow Nissan to avoid CAFE penalties and increase domestic auto-related employment.

The organization also argued that granting Nissan's petition would provide Nissan with a distinct competitive advantage over other manufacturers by allowing Nissan to avoid CAFE compliance costs that other manufacturers must bear. According the UAW,

this competitive advantage would harm employment in the U.S. automobile manufacturing sector by causing the loss of sales by other manufacturers, both foreign-based and U.S.-based, whose automobiles have higher domestic content than those produced by Nissan. Moreover, even if Nissan buyers prefer to buy Japanese nameplate vehicles, the UAW contends that two Japanese producers, Toyota and Honda, have higher domestic content than Nissan. Therefore, even if Nissan's sales increases came only at the expense of Toyota and Honda, U.S. employment would still suffer. The UAW also argued that the idea that "import buyers" will only buy other imports might be outmoded. Increases in quality and product offerings by Detroit-based producers have, in the UAW's view, narrowed the differences between foreign and domestic brands to the degree that the "import buyer" phenomenon may no longer exist.

The joint comment filed by GM, Ford, and DC also opposed the Nissan petition. These manufacturers stated that the legislative history of the 1980 amendments, which authorized the exemption, demonstrates that Congress intended to encourage foreign manufacturers to begin producing vehicles in the U.S., rather than provide a benefit to manufacturers with established U.S. assembly plants.

As Nissan has been producing vehicles in U.S. plants for many years, GM, DC and Ford argued that granting the petition would accomplish little more than providing the company with a competitive advantage not envisioned by Congress when it authorized the exemptions. According to GM, DC and Ford, this competitive advantage would include avoiding the administrative costs of maintaining two fleets and gaining the flexibility of being able to combine all of its annual production into a single fleet.

GM, DC, and Ford also stated, as did the UAW, that granting the petition would be inequitable. They stated that Nissan had ample notice of the eventual effects of the NAFTA amendments. Accordingly, they said that Nissan should bear the brunt of those effects, particularly since it already knew about those effects when it moved the production of the Sentra from Tennessee to Mexico.

None of the comments or letters submitted to the agency contained any data responsive to several requests in the agency's notice for data. The agency's notice specifically requested that commenters provide data regarding the costs or savings of changing the content of their vehicles from domestic to non-domestic sources. The notice also requested that commenters provide information and data about vehicles expected to compete with Nissan automobiles and solicited views regarding the existence and impact of the "import buyer" phenomenon cited by Nissan in its petition. No views on competing vehicles or that phenomenon were submitted.

VI. Additional Information Submitted by Nissan

In response to an agency request, Nissan submitted additional data regarding its projected CAFE on February 19, 2004. On February 24, 2004, the agency met with representatives of Nissan and requested additional data to assist the agency in evaluating the petition. To allow the agency to calculate Nissan's future CAFE, the potential for penalties, and the cost of various options that Nissan might pursue if there were no exemption, we requested that Nissan provide information regarding product plans, disaggregated sales information, and disaggregated fuel economy information for the 2004 through 2010 MYs. In order to evaluate the impacts of shifting different models from the domestic to the non-domestic fleet, the agency also requested specific

information about changing the content of the Sentra, Altima and Maxima, including how allocation of costs impacts prices of Nissan vehicles.

Nissan responded to the agency's requests by providing several written submissions, including ones on March 4, and March 15, 2004. Each of the submissions was accompanied by a request that portions of the data be granted confidential treatment by the agency. Public versions of these submissions and its earlier February 19 submission have been placed in the docket.

Nissan's March 15, 2004 submission contained additional data regarding the dollar value, on a per-vehicle basis, of the domestic content that would need to be replaced by non-domestic content for the vehicle that would be the most likely candidate for this strategy. Nissan also described how this recontending would affect the costs of building this vehicle on a per-vehicle basis. Nissan then compared the costs of pursuing the recontending option with the costs of paying CAFE penalties.

Nissan also revisited its contention if it lost sales due to the cost effects of the NAFTA amendments, its lost customers were more likely to purchase import nameplate vehicles than domestic nameplate brands. In Nissan's view, this "import buyer" phenomenon would result in a loss of jobs in the U.S. automotive industry if Nissan were not exempted and were instead to pursue a recontending option or choose to pay CAFE penalties.

Although it did not provide any data supporting these arguments, Nissan presented two scenarios in support of its argument that the "import buyer" phenomenon would contribute to the loss of U.S. jobs if its petition were denied. In one scenario, Nissan assumed that it would choose to pay CAFE penalties for its non-domestic fleet

and that the costs of these penalties would be allocated to the models in that fleet (350Z, Infiniti G35, G35 Coupe, Infiniti M45, and Infiniti Q45). Nissan then asserted that its own internal sales research indicated that buyers of these models would most likely be diverted to imported vehicles rather than domestically produced import nameplate models and traditional domestic brands. Even if lost Nissan sales resulted in increased sales of domestically produced vehicles, Nissan contended that these sales increases would be diffused across a number of vehicle models and brands. In Nissan's view, this wide distribution of increased sales would, at best, result in such small increases in sales of different vehicle models that the manufacturers of these vehicles would not need to hire new workers to meet additional demand.

The second scenario discussed by Nissan was based on the outcomes resulting from its recontending a particular vehicle. Nissan presented data showing the dollar value of domestic parts that would need to be replaced with non-domestic parts to reduce the vehicle's domestic content to less than 75%. According to Nissan, this recontending scenario would result in the loss of hundreds of American jobs, even if only some of the domestic content in the vehicles originated in the U.S. Nissan also stated that recontending would make such job losses almost inevitable, since the loss of business would impact a small number of supplier firms that produce high volumes of parts for a single customer and could not readily replace the work done for that customer with work for another customer.

VII. Agency Evaluation of Merits of Nissan's Petition

A. Eligibility of Nissan to Petition for Exemption

Determining the eligibility of a manufacturer to petition for exemption from the “two-fleet” rule requires examination of the agency’s statutory authority for granting such relief.

Section 32904(b)(6)(A) provides that authority as follows:

(6)(A) A manufacturer may file with the Secretary of Transportation a petition for an exemption from the requirement of separate calculations under paragraph (1)(A) of this subsection if the manufacturer began automobile production or assembly in the United States—

- (i) after December 22, 1975, and before May 1, 1980; or
- (ii) after April 30, 1980, if the manufacturer has engaged in the production or assembly in the United States for at least one model year ending before January 1, 1986.

Section 32904(b)(6)(A) states that in order for a manufacturer to be eligible to petition for exemption, the manufacturer must either have begun producing or assembling automobiles in the U.S. after December 22, 1975, and before May 1, 1980, or have begun manufacturing automobiles in the U.S. after April 30, 1980 and completed at least one model year of production before December 31, 1985. Nissan meets subparagraph (ii) of §32904(b)(6)(A). Nissan began automobile production in the U.S. after April 30, 1980. It did so by beginning to produce trucks in Tennessee in 1983.⁸ By January 1, 1986, it had completed “three model year’s worth of automobile production after April 30, 1980 and before January 1, 1986.” (Nissan petition, at p. 4)

B. Extent of the Agency’s Discretion to Grant or Deny Nissan’s Petition

If a manufacturer meets the threshold eligibility requirements in §32904(b)(6)(A), the agency must then consider the extent of its discretion to grant or deny a petition under §32904(b)(6)(B). That discretion, and thus the scope of the agency’s inquiry, is very limited. Section 32904(b)(6)(B) provides

⁸ As used in EPCA, “automobiles” include passenger cars, vans, SUVs, and pickup trucks.

(B) The Secretary of Transportation shall grant the exemption unless the Secretary finds that the exemption would result in reduced employment in the United States related to motor vehicle manufacturing during the period of the exemption. ...⁹

(Emphasis added.)

There are two particularly important aspects of that provision.

1. Discretion to Deny only upon Finding of Adverse Employment Impact

The first is that Congress did not simply mandate that employment impacts be considered in deciding whether to grant or deny a petition, thus leaving open the possibility that other factors could be considered. It went much further, saying that the only circumstance in which the agency may deny a petition is if the agency is able to find and does find that granting an exemption would result in an adverse impact on employment. The directive in §32904(b)(6)(B) is clear, unambiguous and free of any language permitting or implying that any issues other than the impact on employment may factor in the agency's decision. The only statutorily relevant issue is the impact on employment.

Accordingly, the agency is foreclosed from basing its decision whether to grant or deny on additional factors as suggested by the UAW and GM, DC and Ford. The UAW urged us to take into consideration whether Nissan had adequate notice that the NAFTA amendments would eventually operate so as to shift its Mexican production from one fleet to another. We are also constrained from considering, beyond the impact that granting the exemption may have on employment, whether granting Nissan's petition might otherwise be inequitable in some fashion.

⁹ The Secretary of Transportation has delegated the authority in §32904 to the NHTSA Administrator. 49 CFR 1.50.

2. Probability of Adverse Employment Impact must be Reasonably High

The second is Congress provided that in order to make a finding sufficient to enable the agency to deny a petition, NHTSA must find that an adverse employment effect “would” result from granting an exemption, not merely that such an effect might or could result. We believe it insufficient for the agency to find that there is a mere possibility of an adverse employment effect or even that such an effect is more likely than not. The agency would need to find a still higher degree of likelihood, a reasonable certainty, that an adverse effect would result from granting an exemption.¹⁰

C. Consistency of Nissan’s Petition with Congressional Intent

In their joint comment, GM, DC and Ford contended that the legislative history of the exemption provision compels the agency to consider the Nissan petition as untimely and inconsistent with statutory intent. Relying primarily on an excerpt from the House Committee Report on the 1980 amendments stating that the exemption provision was

¹⁰ See Usery v. Hermitage Concrete Pipe Co., 584 F.2d 127 (6th Cir. 1978), where the court stated that the Occupational Safety and Health Review Commission imposed too stringent a degree of probability in resolving that the Secretary of Labor failed to prove a serious violation of the Occupational Safety and Health Act of 1970 by virtue of manufacturer's failure to protect its employees from silica dust exposure by requiring Secretary to show that silicosis, and hence serious bodily injury or death, “would,” as opposed to “could,” result from condition. Occupational Safety and Health Act of 1970, § 17(k) as amended 29 U.S.C.A. § 666(k). The court noted that the Commission employed a more restrictive standard than that which is called for by the Act. The court went on to say that the Commission appears to have ignored the standard that there be “a substantial probability that death or serious physical harm *could* result from a condition which exists.” Instead, a majority of the Commission, by consistent employment of the term “would” in place of “could,” appears rather clearly to have required a greater degree of certainty. The court noted that the distinction is not merely one of semantics.

In FTC v. Heinz, 246 F.3d 708 (D.C. Cir. 2001), the court discussed the standard of review under Section 7 of the Clayton Act which prohibits acquisitions, including mergers, “where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition *may* be substantially to lessen competition, or to tend to create a monopoly” [Emphasis added] 15 U.S.C. § 18. With respect to the term “may,” the court quoted two sources of guidance. First, in Brown Shoe Co. v. U.S., 370 U.S. 294, at 323, (1962), the Court stated that “Congress used the words ‘may be substantially to lessen competition,’ to indicate that its concern was with probabilities, not certainties.” Second, the legislative history reads: “The use of these words [“may be”] means that the bill, if enacted, would not apply to the mere possibility but only to the reasonable probability of the proscribed effect...” See S.Rep. No. 1775, at 6 (1950), U.S.Code Cong. & Admin. News at 4293, 4298.

“designed to provide incentives to new domestic manufacturers” (H. Rep. No. 96-1026, at 14 (1980)), these manufacturers stated that Congress meant for §32904(b)(6)(B) to operate only as an incentive to induce manufacturers to build new plants in the U.S. during a limited time period from 1975 to 1986. Since the window for building such plants has long been closed, GM, DC and Ford argued that allowing Nissan to benefit from an exemption in 2004 “stretches” the statutory intent of the 1980 Amendments.

Neither the language of the statute nor the legislative history demonstrates that Congress intended to restrict the operation of this “job related” provision once a manufacturer began producing automobiles between 1975 and 1986. Congress did specify certain time limits, e.g., that a qualifying manufacturer must have begun or must begin U.S. production within a specific period. To encourage foreign manufacturers to begin production in the U.S., Congress limited the opportunity to petition for exemption from the two-fleet rule to only those manufacturers that began production within that 10-year window. Congress also specified that an exemption would ordinarily be effective for five model years. However, it did not place any time limits on when a qualifying manufacturer may apply for an exemption. The absence of such a limit in the statute, particularly when other time limits are present, provides compelling evidence that Congress did not intend to set a time limit restricting when qualifying manufacturers could apply.

This conclusion is reinforced by the conference report on the 1980 amendments:

The conference substitute allows manufacturers to petition for an[d] receive an exemption any time after the date of enactment of the Act.

(H. Rep. No. 96-1402, at 12 (1980)) (Emphasis added.)

The joint comment of GM, DC and Ford cite an excerpt from the House Committee report, (at 14), to support their assertion that the exemption provision was intended primarily to encourage the building of new vehicle plants.¹¹ However, examination of the entire paragraph from which this excerpt was drawn reinforces our view that the primary purpose of the exemption provision is to preserve or expand employment in the U.S. automobile industry when the two-fleet rule would otherwise limit the use of components made in the U.S. or Canada in U.S. assembly plants:

Section 4(a) of the Committee Amendment is designed to provide incentives to new domestic manufacturers to increase the local content of their vehicles, as recommended by DOT. It is a “job related” provision.

(H. Rep. No. 96-1026, at 14 (1980)).

The Conference report contained similar language:

The purpose of this provision is to encourage increased employment in the United States....

(at 13) Employment in the U.S. could be benefited not only by inducing foreign manufacturers to begin production in the U.S., but also by granting petitions for exemptions from the two-fleet rule any time that the rule would encourage a manufacturer to limit or reduce the domestic content of its vehicles, thus adversely affecting employment related to motor vehicle manufacturing in the U.S.

D. Methodology for Determining Net Employment Impacts

1. Rationale for the Analysis

As noted above, the statute requires that we grant Nissan’s petition unless we find that doing so would result in reduced employment related to motor vehicle manufacturing in the U.S. To assess whether such a reduction would result, we needed to examine two

¹¹ The agency believes that the meaning of §32904(b)(6) is clear, and therefore that further inquiry into the legislative history is unnecessary.

different scenarios: a baseline scenario in which there was no exemption and a scenario in which there was an exemption.

In the baseline scenario, Nissan would remain subject to the two-fleet rule and continue to be required to ensure that its domestic and non-domestic fleets separately comply with the CAFE standard for passenger automobiles. The increase in domestic content of Sentra due to the operation of the 1994 amendments would cause that vehicle model to shift from that company's non-domestic fleet to its domestic fleet, causing its non-domestic fleet to fall below the CAFE standard. Nissan would need either to pay penalties for noncompliance or implement options that would enable it to eliminate the CAFE deficit. Our analysis assumes that Nissan will pass the costs of those actions along to consumers in the form of higher automobile prices.

In the exemption scenario, the petition would be granted, exempting Nissan from the two-fleet rule. Since Nissan would have a single fleet that would meet the CAFE standard for passenger automobiles, Nissan would not need to take any of the actions described in the baseline scenario. Thus, Nissan would not incur any costs that it would need to pass along to consumers by raising prices. Compared to the baseline scenario, this would put Nissan in a more advantageous position vis à vis its competitors, possibly inducing consumers to buy more Nissan automobiles and fewer competing automobiles.

2. Outline of Analytical Steps

The following steps were taken in conducting our analysis.¹²

- (i) First, the Agency investigated the costs of Nissan's options under the baseline scenario: paying penalties for noncompliance or taking one of

¹² Economists at DOT's Volpe National Transportation System Center participated in conducting the analysis.

several alternative courses of action to comply with the CAFE standard. Nissan described three options in the petition. We considered Nissan's three options, plus three additional options. We dropped one of the additional options on the grounds of prohibitive cost, and included the remaining five options in our analysis. We then made assumptions about how the cost of each option in our analysis would affect the price of Nissan's products.

- (ii) Second, we identified automobiles that compete with Nissan's automobiles. This was accomplished using six different market classifications defined by *Automotive News* (small economy, sporty touring, mid-range standard, mid-range premium, upscale near luxury, and upscale luxury). These automobiles were judged to be close competitors of the Nissan automobiles whose prices would be affected by our granting the petition. A list of these automobiles, arranged by category, is contained in Appendix A of this notice.
- (iii) Third, in order to predict the substitution of automobiles that would occur annually as a result of lower prices of Nissan automobiles in the exemption scenario, the agency employed statistical models known as multinomial logit (MNL) models. These models predict how Nissan's cost savings and resulting lower prices would impact sales within these discrete market segments.¹³ Six MNL models were estimated, one for

¹³ A multinomial logit model is a form of what are known as discrete choice models. These models are widely used in economic, marketing, transportation and other fields to represent the choice of one among a set of mutually exclusive alternatives. As purchasing a vehicle represents a discrete choice and that choice, for all but the most wealthy or irrational consumers, is mutually exclusive, the agency chose to use a

each market classification.¹⁴ These models predict the number of competitors' sales that are lost, given a reduction in the price of one or more Nissan automobiles.

- (iv) Lastly, we converted the annual changes in automobile sales into annual changes in employment. Using data showing the U.S. man-hours expended in the assembly of automobiles and the production of engines and transmissions, we computed total U.S. jobs in both the baseline scenario and the exemption scenario. Our analysis also accounted for impacts on suppliers of engines and transmissions, but not other “upstream” parts suppliers. The difference of the two is the net employment impact of granting the petition.¹⁵

E. Details of the Analysis

1. Potential Compliance Options Nissan Could Choose

In performing the baseline analysis, NHTSA assumed that Nissan would react to the statutorily caused change in the composition of its non-domestic and domestic fleets as any rational profit maximizing automobile manufacturer would, i.e., by evaluating the options available to it and selecting the lowest cost option that enables its non-domestic passenger automobile fleet to comply with CAFE standards. Nissan identified three options in its petition: (1) & (2) reduce the domestic content in either the Sentra or Altima so it is reclassified as a non-domestic vehicle, or (3) pay CAFE penalties. In deciding

multinomial logit model to predict the car buying choices consumers would make under the most likely set of outcomes that would result from granting Nissan's petition. A more detailed explanation of this model is contained in Appendix A.

¹⁴ Analyzing the choices that consumers will make requires knowledge of the options or alternatives available to the consumers. The set of options or alternatives are known as a “choice set.”

¹⁵ See Part VII.E.4 below for a discussion of the effects of the various assumptions in this analysis on the estimated employment impacts and Part VIII.C. below for a discussion of the supplier and parts producer jobs not included in this analysis of net employment impact.

which options to include in its analysis, NHTSA examined these options, plus three others: move Infiniti and 350ZX production to the U.S. (causing those relatively fuel-inefficient vehicles to become domestic), improve the CAFE of its non-domestic fleet sufficiently to eliminate the CAFE shortfall, or improve the CAFE of its non-domestic fleet up to the point that paying CAFE penalties becomes less expensive than the cost of further improvements and then pay those penalties.

i. Options in Nissan's Petition

Nissan's petition listed three potential compliance options it would consider if its petition were denied. One option would be to move the Sentra from its domestic fleet to its non-domestic fleet by replacing domestic content with non-domestic content. A second option would be to move the Altima to its non-domestic fleet by reducing the domestic content of that automobile. A third option would be to pay CAFE penalties.

The first two options involve reducing the domestic content of either the Altima, currently built in the U.S., or the Sentra, currently built in Mexico. In either case, the automobiles' domestic content would be reduced to less than 75%, making these automobiles part of Nissan's non-domestic fleet, thereby balancing the CAFEs of the two fleets and making Nissan compliant with the current standard. If the domestic content of the Mexican built Sentra were reduced to below 75% so that it is reclassified as a non-domestic automobile, Nissan would comply with 27.5-mpg passenger automobile standard in both of its fleets. The same is true if the domestic content of the U.S. built Altima and Maxima were reduced to below 75%.

Nissan's petition states that the company's most likely response to not obtaining an exemption would be to remove domestic content from the Sentra. Although NHTSA

solicited comments and data regarding the costs of removing domestic content in its February 5, 2004 notice, we did not receive any information in response to that request. At the agency's request, Nissan later provided that information for its vehicles.

Because the agency does not have the data needed to determine the costs of content shifting, we relied on an analysis of these costs submitted by Nissan. In that analysis, Nissan provided estimates of the per-vehicle costs and the dollar value of the components and domestic labor that must be shifted from domestic sources to non-domestic sources to reduce the domestic content of the Sentra to less than 75%. A similar analysis was provided for the domestic Altima. Upper bounds of the cost estimates for the two content shifting options appear in Table 1. Although the per-vehicle costs for the two options are similar, the total costs are different due to the number of each automobile produced. Nissan also claims that content shifting must be done to the entire production of a particular model line.

The third option discussed by Nissan was that the company could simply maintain its current product plans and pay whatever CAFE penalties it would incur as a result of its non-domestic fleet failing to meet the standard. For each model year it falls short of the standard, Nissan would need to apply credits, pay a penalty, or, if its credits were not sufficient to address the shortfall, pay penalties and apply credits at the same time. If it were to rely on credits, Nissan would, for each model year it has a shortfall, either need to apply credits it has earned in the three previous model years or file a plan with NHTSA seeking approval to apply credits it would earn in the next three years. *See 49 U.S.C. §32903.*

The data provided by Nissan related to its non-domestic fleet show that, by MY 2006, the company will not have any credits available from past years, or based on its present product plans, be in a position to file a plan to use credits from future model years. Nissan claims that paying penalties is not a likely course of action: “For a variety of reasons, however, including economic considerations and publicity, Nissan is not likely to pursue this option.” (p.13). However, given that a number of manufacturers routinely pay CAFE penalties and doing so may be an option that a rational manufacturer would consider, the agency decided that this option is sufficiently viable for it to be included in the agency’s analysis.

For passenger automobiles, CAFE penalties for each model year are calculated by applying a penalty of \$5.50 for each tenth of a mile of a gallon that the CAFE for a manufacturer’s fleet is less than the current standard of 27.5 mpg and multiplying the resulting figure by the number of automobiles manufactured in that fleet in that year. *See 49 U.S.C. §32912(b) and 49 CFR 578.5(h)(2)*. Nissan provided a projection of its future CAFE performance to the agency in its supplemental submissions. Based on these data, the shift of the Mexican Sentras to the domestic fleet, and Nissan’s not taking any other measures to improve non-domestic fleet, we estimated that Nissan’s potential CAFE penalty liability ranges from \$25.0 million for MY 2006 to \$12.0 million in MYs 2008 and 2010. These costs, along with the potential costs of other options we considered as likely to be chosen by Nissan, are summarized in Table 1.

ii. Additional Options Considered by the Agency

NHTSA also considered three additional options that were not identified in Nissan’s petition. First, we considered, as the U.A.W. suggested in its comments, the

possibility that Nissan could improve its non-domestic fleet average by relocating production of 350ZX and Infiniti automobiles to the U.S., thereby increasing their domestic content above the 75% threshold, and changing their classification to domestic. Relocating production of the 350ZX and Infiniti passenger automobile lines to the U.S. might offset the loss of the Mexican-built Sentras from Nissan's non-domestic fleet. We have determined, however, that no rational, profit-maximizing manufacturer would pursue this strategy.

North American sales of the 350ZX and Infiniti lines are relatively small compared to those of the Sentra, Altima, or Maxima. Relocating production of these vehicles to North America would have several impacts. The plants now producing them would have to closed or used at less than full capacity. Production of the 350ZX and Infiniti lines would have to either be incorporated into existing North American production lines, which may exceed capacity and require substantial investment, or opening. Shifting the production of these automobiles would entail significant capital expenditures to construct a new plant in North America to build them. The expenditures would be in the hundreds of millions of dollars.¹⁶ The shift would also lead to an under-utilization of existing plants in Japan. For these reasons, the agency did not consider it worthwhile to quantify the costs of this option since a profit-maximizing manufacturer would not be likely to choose it.

The agency also considered two options that involve the addition of fuel saving technology to Nissan's non-domestic fleet so that it complies with the CAFE standard. Adding technology to a domestic fleet containing the Sentra would not be necessary, as

¹⁶ Construction of BMW's Spartanburg, North Carolina Assembly plant, which produces premium vehicles similar to the Infiniti and 350ZX lines, involved an investment well over \$500 million dollars. http://www.autointell-news.com/european_companies/BMW/bmw3.htm.

that fleet would meet the 27.5-mpg standard. To aid it in analyzing what technologies might be added, NHTSA used a report by the National Academy of Sciences (NAS).¹⁷ Responding to a Congressional directive in the FY 2001 DOT Appropriations Act (Pub. L. 106–346.), the NAS completed a review of fuel economy standards in 2002. This review included an examination of technologies that could be used to increase the fuel economy of new light duty automobiles. The NAS did not discuss all possible technologies, but rather listed about two-dozen specific technologies and groups of technologies that it considered as technically feasible and cost-effective. The NAS report has received extensive external review, and is considered to be a reasonable and reliable appraisal of the range of technologies, the resulting improvement in fuel consumption improvement, and costs. A list of these technologies, their costs ranges and resulting improvements in fuel economy appear in Appendix B.

In its analysis, the agency added NAS report fuel efficiency technologies to the technologies already in Nissan’s non-domestic passenger automobiles, beginning with those technologies that provided the most improvement for the least cost, and continuing with those technologies that produced progressively less return in fuel efficiency for the incurred cost.¹⁸ Under this methodology, we considered that Nissan would pursue one of two options. One option – which our analysis termed the “technology with cost minimization” approach - would be to add technology until the cost of doing so equals or exceeds the cost of paying penalties. At that point, we assumed Nissan would elect to pay the penalties rather than pay for the relatively more expensive technology. The second option, which takes into account Nissan’s representation that it would exhaust

¹⁷ “Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards,” (2002).

¹⁸ The agency used a similar methodology, which we referred to as the “Volpe Analysis,” in promulgating the light truck fuel economy standards for MYs 2005-2007 (68 FR 16867; April 7, 2003)

other options before paying CAFE penalties, estimated Nissan's costs if it used all available technologies, regardless of cost, to achieve compliance. This approach is termed the "technology only" approach in Table 1.

Our analysis showed that technology with cost minimization option would not yield a significant change in the CAFE of Nissan's non-domestic fleet. Using the mid-range of cost and fuel consumption improvement estimates from the NAS report demonstrated that applying any but the most inexpensive technologies (i.e., use of low friction lubricants) exceeded the costs of paying penalties. Given the relatively low cost of paying penalties instead of investing in more fuel-efficient technologies, we estimated that Nissan would only be able to improve its non-domestic fleet fuel economy by one to five percent under this option. Therefore, if the benefits of better fuel economy are ignored, this option simply becomes the same as the paying-the-penalties option since only a small amount of technology would be used before paying penalties becomes less expensive.

The agency believes that increased fuel-efficiency provides benefits that are valued by consumers. Consumers will realize benefits from lower operating costs if they choose a more fuel-efficient automobile over a less-efficient one. Since this benefit might induce purchasers to choose to buy a Nissan automobile instead of a competitor's product, we assume that Nissan would choose to add additional technology to provide this additional benefit to its potential customers. Under the technology with cost minimization option, Nissan will add technology until the incremental cost of technology, less the benefits of increased fuel economy, exceeds the cost of paying the penalty. This fuel savings benefit was calculated using a price of \$1.50 per gallon over a 4.5-year time

horizon, discounted at 7%.¹⁹ If Nissan chose to expend additional sums to provide this fuel savings benefit, it would spend more than it would if it simply chose to pay penalties. Table 1 shows annual costs would vary from \$32.8 million in 2006 to \$19.4 million in 2008. These costs are slightly higher than the technology only option for which total costs range from \$19.9 million in 2010 to \$44.8 million in 2009. This option uses technology, no matter what the cost, to avoid paying penalties.

Model Year	Reduce Domestic Content of Sentra*	Reduce Domestic Content of Altima*	Pay Penalty	Technology w/ Cost Minimization	Technology Only
2006	< \$10	< \$20	\$25.0	\$32.8	\$39.6
2007	< \$10	< \$20	\$13.5	\$20.2	\$38.3
2008	< \$10	< \$20	\$12.0	\$19.4	\$43.9
2009	< \$10	< \$20	\$13.5	\$21.5	\$44.8
2010	< \$10	< \$20	\$12.0	\$19.9	\$44.3
* A range is used to preserve the confidentiality of data submitted by Nissan.					

2. Impacts of Options on Prices of Nissan's Automobiles

The agency's analysis concluded that in the baseline scenario, Nissan would likely adopt one of five options to address the CAFE shortfall in its non-domestic fleet: recontent the Sentra or Altima, pay CAFE penalties, improve fuel economy until the cost of doing so equaled penalty costs less gains to the consumer, and improve fuel economy using technology regardless of cost. Taking the total estimated costs provided in Table 1 and projections of Nissan sales for each of the 2006 through 2010 MYs, we calculated the

¹⁹ For this analysis, NHTSA assumed a gasoline price of \$1.50 per gallon. This is about \$0.04 per gallon higher than NHTSA assumed when preparing its analysis of the recently-promulgated changes to the CAFE standard for light trucks. By comparison, the Energy Information Administration's latest Annual Energy Outlook (AEO 2004) forecasts that gasoline prices will eventually tend toward a stable \$1.49 per gallon.

increased cost per automobile under two different cost recovery assumptions. The first assumption is that compliance costs attributable to a particular model are recovered by passing them directly on to the buyers of that model in the form of a higher price for each sale of that model. The second assumption is that compliance costs are spread out evenly across the entire fleet incurring them.

In its March 15, 2004 response to our request for supplemental data, Nissan stated that it passes compliance costs on exclusively to the models that incur them. For example, if recontending the Sentra were to cost \$8 million in 2006 and 100,000 are produced, the price increase for a Sentra would be \$8 million divided by 100,000, or approximately \$80 per automobile.

However, the agency believes that a rational profit-maximizing firm in the same position as Nissan might allocate compliance costs across its entire fleet. The demand for an economy passenger automobile such as a Nissan Sentra is more likely to be driven by price than the demand for a higher priced luxury passenger automobile such as the Infiniti Q45. Raising the price of luxury Nissan automobiles by \$80, or even \$160, would be a small change in their overall prices and would probably have little impact on demand. On the other hand, raising Sentra prices by \$80 may have a relatively larger impact on sales. Based on these considerations, we considered a variation of the recontending option in which the costs incurred by Nissan under the baseline were allocated evenly across its non-domestic fleet. For example, if recontending the Sentra cost \$8 million in 2006 and 200,000 passenger automobiles were produced for Nissan's non-domestic fleet, all the automobiles in that fleet, from the Sentra to the most expensive Infiniti, would increase in price by \$40.

The agency's estimates of the price changes per automobile under these two different cost recovery assumptions are shown below in Tables 2A and 2B. The options are listed from left to right in the order of their cost:

Table 2A - Per automobile price increases under the direct cost recovery assumption *					
Model Year	Reduce Domestic Content of Sentra**	Reduce Domestic Content of Altima**	Pay Penalty	Add Technology w/ Cost Minimization	Add Technology Only
2006	\$25-150	\$25-150	\$0 - \$262	\$0 - \$344	\$174 - \$344
2007	\$25-150	\$25-150	\$0 - \$240	\$0 - \$358	\$174 - \$384
2008	\$25-150	\$25-150	\$0 - \$231	\$0 - \$371	\$174 - \$384
2009	\$25-150	\$25-150	\$34 - \$379	\$61 - \$602	\$174 - \$384
2010	\$25-150	\$25-150	\$32 - \$361	\$59 - \$596	\$174 - \$384
* In this table, we assumed that costs are distributed to models that accrue them. Since different models accrue different compliance costs, these price increases appear as ranges showing the minimum and maximum price increase. All price increases are rounded to the nearest dollar.					
** Since only one model line is altered, these prices only apply to the Sentra and Altima respectively. A range is used to preserve the confidentiality of data submitted by Nissan.					

Table 2B - Per automobile price increases under the uniform cost spreading assumption *					
Model Year	Reduce Domestic Content of Sentra	Reduce Domestic Content of Altima	Pay Penalty	Add Technology w/ Cost Minimization	Add Technology Only
2006	\$0-100	\$0-100	\$196	\$256	\$310
2007	\$0-100	\$0-100	\$113	\$169	\$319
2008	\$0-100	\$0-100	\$89	\$143	\$324
2009	\$0-100	\$0-100	\$93	\$147	\$307
2010	\$0-100	\$0-100	\$83	\$137	\$306
* In this table, we assumed costs are evenly distributed over the fleet that incurs them. In the case of reducing domestic content in the Sentra (Altima), the Sentras (Altimas) are assumed to be part of the import fleet. In all other cases, both the Sentras and Altimas are assumed to be part of the domestic fleet. In all cases, costs are incurred and spread across the import fleet. All price increases are rounded to the nearest dollar.					

3. Impacts of Price Changes on Automobile Sales

i. Estimation of Impacts Due to Price Changes

Whatever option Nissan chooses under the baseline scenario will cause an increase in the price of Nissan passenger automobiles. Because the per automobile price increases shown in Tables 2A and 2B are small relative to the price of a new passenger automobile, we assume that total automobile sales would remain constant regardless of which option Nissan chooses. If Nissan automobiles become more expensive, some consumers will forego buying Nissans and choose some other automobile. Therefore, sales losses by Nissan translate into increased sales for its competitors.

To predict shifts in automobile purchases as a result of price changes, we utilized a multinomial logit (MNL) model. MNL models are commonly used in the economics literature to estimate demand in situations in which only one good is chosen from a larger choice set. They have been used to model the demand for automobiles, durable goods and travel mode. This type of model is especially appropriate for automobile purchases because consumers rarely buy more than one automobile at a time.

To construct the model, all relevant automobiles need to be grouped into “choice sets”. A choice set is a grouping of automobiles that are considered to be direct competitors, or close substitutes. For the analysis, we use market classifications defined by *Automotive News* in 2003.²⁰ A table of these choice sets and an explanation of MNL models appears in Appendix A.

When the price of Nissan automobiles increases, the MNL model will predict that fewer Nissan automobiles will be sold. The loss in sales to Nissan will be offset by an increase in sales of competitor’s automobiles. For example, if one of the options pursued

²⁰ <http://www.autonews.com/images/dataCenter/1365.pdf>

by Nissan resulted in the price of Sentras being \$80.00 higher during each model year from 2005 through 2010, the agency's MNL model predicts changes in sales of competing vehicle models as illustrated in Table 3.

Manufacturer	Nameplate	2004	2005	2006	2007	2008	2009	2010
Dodge	Neon SRT-4	0	28	22	27	27	27	27
Mitsubishi	Lancer ES	0	13	10	13	13	13	12
Ford	Focus ZX3 Hatchback	0	23	18	22	22	22	22
Mazda	Mazda3	0	35	27	34	34	34	33
Chevrolet	Aveo	0	18	14	17	17	17	17
Chevrolet	Cavalier Base 2dr Coupe	0	21	17	21	21	21	20
Pontiac	Vibe AWD 4dr Wagon	0	9	7	9	9	9	9
Saturn	Ion 1 Style Sedan	0	15	12	15	15	15	15
Hyundai	Elantra GT Hatchback	0	24	18	23	23	23	22
Kia	Optima EX	0	13	10	13	13	12	12
Nissan	Sentra 1.8/2.0	0	-236	-242	-231	-231	-227	-223
Nissan	Sentra 2.5 S	0	-77	0	-75	-75	-74	-73
Suzuki	Aerio LX Fwd Sedan	0	21	16	21	21	20	20
Suzuki	Aerio Wagon	0	19	15	19	19	18	18
Toyota	Corolla CE	0	55	42	54	54	53	52
Toyota	Matrix Base Fwd Wagon	0	19	15	19	19	18	18

ii. The Import Buyer Phenomenon

Nissan's petition alleged that purchasers of their products are more likely to purchase an "imported" automobile than one manufactured by one of the traditional domestic manufacturers, i.e., Ford, GM or Chrysler. This "import buyer" phenomenon, according to Nissan, influences purchasing decisions and supports the notion that lost sales by Nissan will not necessarily result in increased sales by domestic manufacturers. Nissan further noted that the agency acknowledged the existence of this "import buyer" effect when it issued its decision granting Volkswagen's petition in 1981. (p. 18).

However, Nissan did not submit any data or studies quantifying the scope or impact of this “import buyer” phenomenon.²¹

NHTSA believes that to the extent an “import buyer” preference exists, the effects of this phenomenon are vastly different today than they were when Volkswagen made a similar argument over 20 years ago. In contrast to 1981, when Volkswagen was the only “import” manufacturer building passenger automobiles in the U.S., there are now eight “import” manufacturers producing passenger automobiles in the U.S., either in their own plants, or in plants that are joint ventures with domestic nameplate manufacturers. These manufacturers include Mazda, BMW, Honda, Mercedes-Benz, Mitsubishi, Toyota, Nissan, and Subaru. Excluding Nissan, the U.S. production of these “import” brands is approximately two million passenger automobiles each year.

Many of these automobiles, particularly those made by Honda and Toyota, are direct competitors of the Nissan Sentra and Altima. As shown in Table 3 above, a price increase in the Sentra, even without accounting for the “import buyer” phenomenon, shifts most sales to the Toyota Corolla, which is manufactured in the U.S. Moreover, the domestic content of some of these competing models, regardless of their nameplate, is comparable to, or higher than, the domestic content of the Nissan automobiles in the same market segment. Therefore, an increase in the price of a Nissan automobile that induces consumers to choose a domestically produced import nameplate automobile could raise U.S. employment.

²¹ We also note that Nissan’s own marketing efforts acknowledge that domestic nameplate vehicles are legitimate competitors for Nissan customers. Nissan’s web page contains comparisons of several of its passenger automobiles to domestic nameplate vehicles. The Nissan Sentra is compared to the Chevy Cavalier, the Saturn Ion and the Ford Focus. The Nissan Maxima is compared to the Chrysler 300M, the Altima is compared to the U.S. built Mazda 6, and the Infiniti I30 is compared to the Lincoln LS V6. (<http://us.nissan.clientsites.carspecs.jato.com/us.nissan/comparison.asp>)

In certain market segments, particularly those in which import manufacturers do not sell passenger automobiles produced in the U.S., the “import buyer” phenomenon may have more impact. Import nameplate passenger automobiles produced outside of the U.S. predominate in two of the six market segments used as choice sets by the agency’s MNL models. In these segments, (Upscale Cars-Near Luxury and Upscale Cars-Luxury), the lack of domestic nameplate competitors and the preferences of consumers indicate that any “import buyer” phenomenon may have more impact. In these markets, price increases in Nissan products would not necessarily translate into increased sales of domestic nameplate passenger automobiles or increases in U.S. employment.

4. Net Impact on Employment

As noted above, section 32904(b)(6)(B) directs us to grant an exemption petition unless we find that doing so would result in reduced employment related to motor vehicle manufacturing in the U.S. In order to determine if granting the Nissan petition would result in such reduced employment during model years MYs 2006-2010, after estimating the cost and price differences between the baseline and exemption scenarios, and using the price differences to estimate the sales differences between the scenarios, the agency converted the sales differences into employment differences.

In order to do this, the agency needed to develop a means of translating changes in automobile sales into changes in employment. In our 1981 analysis of the Volkswagen petition, NHTSA determined that the additional sale of 12 automobiles in each year would generate one new job in that year. In that analysis, we then adjusted that figure by the percentage of domestic content in each automobile to determine the number of U.S. jobs involved.

NHTSA considered a similar approach for analyzing employment impacts in considering Nissan's petition. Current CAFE reporting requirements define domestic content as value added from both Canadian and U.S. sources. Since our decision must be based on the impact the exemption will have on employment in the U.S. alone, we sought to develop and analyze data that would distinguish between domestic content originating in the U.S., and not in Canada. As noted above, although we asked manufacturers for U.S. content data in our notice of petition, the agency did not receive any response.

In order to develop a means of accurately estimating impacts that changes in sales would have on U.S. employment, NHTSA purchased data from Harbour and Associates listing the number of U.S. man-hours expended in the assembly of automobiles and the production of engines and transmissions. Although these data do not capture the man-hours used to produce an entire automobile, it does represent a large proportion of the labor expended in building one.²² Additionally, the data obtained from Harbour and Associates are collected and maintained so that it is possible to differentiate accurately the relative efficiency of the various producers.²³

Using the Harbour and Associates data described above, we calculated employment impacts by multiplying the number of U.S. hours of labor per automobile times the change in automobile sales predicted by the MNL model. For example, when the price of the Sentra increases by \$80, the resulting sales shifts are shown on Table 3. Many of the automobiles that compete with the Sentra have no U.S. labor associated with them. Examples are the Mazda3, Kia Optima, Hyundai Elantra and Suzuki Aerio.

²² The data includes final assembly of vehicle. It also includes production of engine and transmission, but excludes production of all other parts.

²³ While the agency's analysis in 1981 assumed all manufacturers were equally efficient, this approach captures the variability of labor used by different manufacturers and provides differential data across the various models made by the same manufacturer.

Others such as the Toyota Corolla, Dodge Neon, Ford Focus and Saturn Ion have substantial U.S. labor inputs. Summing the changes in labor associated with each model provides the net labor change.

For each of the five options Nissan could adopt in the baseline scenario, the net employment impacts of granting Nissan's petition are shown below in Tables 4A and 4B. The options are listed from left to right in the order of their cost (see Tables 2A and 2B above):

Table 4A – Number of U.S. Automobile Industry-Related Jobs Gained or Lost (-) if Petition is Granted					
	Direct Cost Recovery				
Year	Recontent Sentra	Recontent Altima	Pay Penalties	Add Technology w/ Cost Minimization	Add Technology Only
2006	-2	1	-41	-54	-67
2007	-2	1	-31	-46	-69
2008	-2	1	-29	-46	-69
2009	-2	1	-21	-34	-68
2010	-2	1	-17	-29	-67

Table 4B – Number of U.S. Automobile Industry-Related Jobs Gained or Lost (-) if Petition is Granted					
	Costs Allocated Evenly across Non-Domestic Fleet				
Year	Recontent Sentra	Recontent Altima	Pay Penalties	Add Technology w/ Cost Minimization	Add Technology Only
2006	-1	-10	-48	-63	-76
2007	-1	-10	-28	-41	-78
2008	-1	-10	-22	-35	-79
2009	-1	-10	-23	-36	-74
2010	-1	-10	-20	-33	-72

Several points about Tables 4A and 4B should be noted. First, the Tables show that the differences between the costs of the baseline options and between the two methods of allocating those costs have a very substantial impact on the effects that each of these options has on motor vehicle manufacturing related employment in the U.S. In the baseline scenario, recontenting the Altima and allocating the cost of doing so to the Altima alone would have the least effect on costs, prices, and sales. If that option is used as the basis for comparison, granting the petition results in a gain of one additional job per year in motor vehicle manufacturing related employment. At the opposite end of the spectrum, choosing to apply fuel saving technologies to Nissan's non-domestic fleet would cause Nissan to incur the greatest costs, raise prices the most, and consequently lose the most sales. Granting the petition would remove the necessity of pursuing this option and would allow Nissan to increase sales in comparison to the baseline scenario, causing decreased sales for competitors and consequent losses (over 70 jobs) in motor vehicle manufacturing related employment.

Second, those tables also indicate that under the direct cost recovery approach that Nissan said it would use, estimated job impacts would exceed one or two jobs per year only for the three most costly options in the baseline scenario – paying CAFE penalties, adding technology to its non-domestic fleet until the point at which it is less costly to pay penalties, and adding technologies without regard to cost.

Third, the results of the analysis depend on the assumptions made in predicting changes in the demand for vehicles and the resulting impacts on employment. These assumptions include the definition of market segments, technology/compliance costs, pricing strategies, specification of the MNL models, restrictions on substitution of

vehicles across market segments, the decision to hold total vehicle purchases constant, and the choice of employment data. Changes in any of these assumptions might change the employment outcome. For employment outcomes very near zero, a job loss could be changed into a job gain or vice versa. However, it is doubtful that the magnitude of the estimated impact would change. Small changes in vehicle prices will inevitably lead to small changes in demand and small employment impacts.

VIII. Agency Decision

Taken together, the results of our analysis of the options do not point uniformly toward any particular conclusion about an increase or decrease in employment as a result of granting the petition. The analysis indicates that there would be a small reduction in employment for some options, but effectively no reduction for either of the available recontending options.

A. If Not Exempted, Nissan would be Most Likely to Select Least Cost Options

The agency cannot give all options equal weight and simply calculate an average of the mixed projections about their employment effects for the various options because the options differ with respect to their likelihood of being chosen by Nissan in the absence of an exemption. As noted above, a rational, profit-maximizing manufacturer will select the least cost way of effectively achieving a goal. It is reasonable to conclude that Nissan is such a manufacturer and that it would not choose any of the more expensive options in the baseline scenario since less costly options (the recontending options) to achieve the same goal are available. Indeed, the list of options that Nissan included in its petition did not include either of the two most expensive options in our analysis. Of the three most costly options in our analysis, Nissan's petition indicated that

the company considered only the least expensive – paying CAFE penalties – as an alternative to recontending. Nissan stated that it is likely to pursue this option for both economic and public relations reasons.²⁴ Applying technology to improve the fuel economy of its non-domestic fleet would, in the instance in which technology is applied only until it ceases to become cost effective compared to paying penalties, place Nissan in the position in which it would spend more and still bear whatever stigma would be associated with being subject to those penalties. The final option, applying technology regardless of cost, would result in Nissan's expending anywhere from \$14 to \$22 million per year more than it would if it simply paid penalties. Based on the confidential data submitted by Nissan, the latter option is many times more costly than the costs associated with recontending.

For these reasons, NHTSA believes that Nissan would be likely to choose recontending instead of any of the three most costly options. Nissan would incur significantly less cost by choosing the recontending options than any of the three most costly options.

B. Agency Analysis of Least Cost Options Shows Granting Petition is Unlikely to Impact Employment

If either of the recontending options is used as the basis for estimating the effect of granting Nissan's petition, the resulting impacts on employment are virtually non-existent. If Nissan were to recontent either the Sentra or the Altima, the changes in motor vehicle manufacturing related employment in the U.S. estimated through our analysis

²⁴ The history of the CAFE program indicates that some manufacturers, particularly those producing imported luxury and high performance automobiles, routinely pay CAFE penalties. Other manufacturers, particularly "full line" manufacturers making a wide variety of automobiles, have not historically paid CAFE penalties. If Nissan were to choose to pay penalties in lieu of complying with CAFE standards, it would be the first "full line" Japanese manufacturer to do so.

would range from a gain of 1 job per year to a loss of 10 jobs per year. As noted above, under the cost recovery approach favored by Nissan, the estimated changes in motor vehicle manufacturing related employment would range from a gain of 1 job to a loss of 2 jobs per year.

Our MNL model assumes that any price change will cause some impact – even if just a de minimis one – on employment. Accordingly, the model predicts negligible impacts from the minimal price changes associated with the two recontending options. NHTSA deems it unlikely that the small estimated sales impacts associated with either of those two options would result in actual changes in employment. As a practical matter, we believe any rational manufacturer faced with having either to increase or decrease productivity for the number of man-hours represented by up to 10 jobs per year would employ options other than hiring or firing workers. We therefore conclude that, under any of the recontending scenarios under our analysis, granting Nissan’s petition would not have an impact on motor vehicle manufacturing related employment in the U.S.

C. Unaccounted for Upstream Supplier Employment Impacts of Least Cost Options are Likely to be Positive

In its March 15, 2004 submission, Nissan provided confidential data indicating that if we deny the petition, Nissan would likely purchase fewer parts from U.S. suppliers and more parts from foreign suppliers in order to recontent one of its vehicles. Nissan indicated that the result would be several hundred fewer American workers producing components to be used in Nissan cars. The economic analysis described above does not account for these employment effects. More specifically, our analysis does not address the “upstream employment” by suppliers of items such as door handles, seats, and instrument panels. We are unable to quantify with precision the number of jobs

potentially lost from denying the petition. The agency could not identify or develop data showing the contribution of U.S. suppliers to the overall domestic content of automobiles built in the U.S.

Nevertheless, the agency believes that even the small price changes associated with the recontending scenarios are likely to cause a shift in Nissan's upstream employment to another manufacturer. None of the recontending cases would result in a large enough increase in the sales of any particular competing automobile to enable former U.S. parts suppliers to Nissan, who would suffer lost business for an entire model, to make up that lost business. Therefore, using the least cost (recontending) options as the basis for comparison, the agency concludes that the upstream supplier employment impacts of granting the petition are likely to be positive.

D. Net Employment Impacts of Granting Nissan's Petition are Likely to be Positive

Given that the agency's analysis of least cost options shows that granting the petition is unlikely to impact U.S. employment, and given that upstream U.S. supplier employment impacts of those options, which are not accounted for in that analysis, are likely to be positive, it is likely, therefore, that more American jobs would be lost if we deny the petition than would be lost if we grant it.

E. Conclusion

In sum, the evidence does not support a finding that granting the petition would reduce motor vehicle manufacturing employment in the U.S. The evidence suggests instead that granting the petition would likely help retain American jobs that might otherwise be sent overseas. Accordingly, the agency will permit Nissan to combine its domestic and non-domestic passenger automobile fleet for model years 2006-2010.

IX. Analyses and Impacts

The agency's notice of petition preliminarily concluded that preparation of an environmental assessment is unnecessary where, as in this case, the agency action at issue involves little or no discretion on the part of the agency.²⁵ We also noted that since this proceeding will not result in the issuance of a "rule" within the meaning of the Administrative Procedure Act or Executive Order 12866, neither the requirements of that Executive Order nor those of the Department's regulatory policies and procedures apply. Our notice said that, for the same reasons, the requirements of the Regulatory Flexibility Act do not apply.

In that notice, NHTSA stated that it would conduct further analyses of these impacts in conjunction with its final decision if comments or other information developed during the agency's analysis indicated such action would be appropriate. None of the individuals or entities submitting comments in response to that notice addressed or took issue with the agency's preliminary conclusion that it need not perform an environmental assessment. Similarly, none of the commenters questioned or offered any views on our preliminary determination that the requirements of Executive Order 12866, the Department's regulatory policies and procedures and the Regulatory Flexibility Act did not apply to his action.

After performing our analysis and reaching our decision on the merits of Nissan's petition, the agency has determined that there is no need to perform an environmental assessment. NHTSA's granting of this petition was, as required by statute, based on the consideration of a single issue – whether doing so would result in decreased employment

²⁵ *Citizens Against Rails-to-Trails v. Surface Transp. Bd.* 267 F.3d 1144, 1153 (D.C. Cir. 2001). *Sac & Fox Nation of Missouri v. Norton*, 240 F.3d 1250, 1262 (10th Cir.2001); *Sierra Club v. Babbitt*, 65 F.3d 1502, 1513 (9th Cir.1995)

in the U.S. automobile manufacturing industry. Since we cannot conclude that granting Nissan's petition would result in such a decrease, we were required by statute to grant the petition. Given this lack of discretion, the agency's granting this petition is not a "major Federal action" within the meaning of NEPA. After consideration of the comments and our analysis, we have also concluded that this action is not a "rule" and within the meaning of the Administrative Procedure Act, Executive Order 12866, the Department's regulatory procedures or the Regulatory Flexibility Act.

Appendix A

Description of the Multinomial Logit Model

In this analysis, we utilize a multinomial logit (MNL) model to estimate consumer responses to price changes. MNL models are commonly used in the economics literature to estimate demand in situations in which only one good is chosen from a larger set of choices. They have been extensively used to model the demand for vehicles, durable goods and mode of travel.

In this instance, the agency sought to determine consumer response to price changes in Nissan passenger automobiles. In order to determine what choices a potential purchaser of a particular Nissan vehicle might have when deciding to buy a passenger automobile, we relied on vehicle classifications developed by an automobile industry trade publication. This publication, *Automotive News*, identified six market segments in which Nissan vehicles compete with similar vehicles. These market segments, presented in Table A, serve as the choice sets that typical consumers of automobiles would confront when choosing a vehicle and are used by the agency to estimate the MNL models.

Small Cars	Sporty Cars	Mid-Range Cars		Upscale Cars	
Economy	Touring	Standard	Premium	Near Luxury	Luxury
<u>Nissan Sentra</u>	<u>Nissan 350Z</u>	<u>Nissan Altima</u>	<u>Nissan Maxima</u>	<u>Nissan Murano</u>	<u>Infiniti Q45</u>
Chevrolet Cavalier	Ford Mustang	Acura RSX	Audi A4/S4	Infiniti FX45	Infiniti M45
Chevrolet Prizm	Mazda Miata	Buick Century	Buick Regal	Infiniti I35	Acura RL
Dodge Neon	Mazda RX8 (2004)	Chevrolet Impala	Infiniti G20	Infiniti G35	Audi allroad
Ford Escort	Mini Cooper	Chevrolet Monte Carlo	Mazda Millenia	Acura CL	Audi A8/S8
	Mitsubishi			Acura TL	BMW 5 series

ZX2	Eclipse	Chrysler Sebring coupe	Mercedes-Benz C230	Audi A6/S6	BMW 7 series
Ford Focus	Pontiac GTO	Chrysler Sebring sedan	Mitsubishi Diamante	BMW 3 series	BMW M3
Hyundai Elantra	Toyota Celica	Dodge Intrepid	Oldsmobile Intrigue	Buick Park Avenue	Cadillac DeVille
Kia Optima	Toyota MR2	Dodge Stratus coupe	Saab 9-3	Cadillac CTS	Cadillac Seville
Mazda Protégé	Spyder	Dodge Stratus sedan	Volkswagen Passat	Chrysler 300M	Jaguar S-type
Mitsubishi Lancer	Volkswagen Cabrio	Ford Taurus	Volvo 40 series	Chrysler Pacifica	Jaguar XJ
Mitsubishi Mirage		Honda Accord	Volvo 60 series	Jaguar X-type	Lexus GS 300
Pontiac Vibe		Hyundai XG350		Lexus ES 300	Lexus GS 430
Saturn Ion		Mazda6		Lexus IS 300/Sport Cross	Lexus LS 430
Suzuki Aerio		Mercury Sable		Lincoln LS	Lexus SC 430
Suzuki Esteem		Mitsubishi Galant		Mercedes C class	Lincoln Continental
Toyota Corolla		Pontiac Grand Prix		Oldsmobile Aurora	Lincoln Town Car
Toyota Matrix		Subaru Baja		Saab 9-5	Mercedes CLK
		Subaru Forester		Volvo Cross Country	Mercedes E class
		Subaru Legacy		Volvo 70 series	Mercedes S-class
		Toyota Camry		Volvo 80 series	Volkswagen Phaeton
		Toyota Camry Solara			

As employed by NHTSA in this case, vehicles fall into six discrete market segments distinguished by significant differences in cost and attributes. Changes in the attributes of vehicles in one choice set are assumed to have no impact the distribution of sales in the other market segments. Within those six market segments, the MNL model assumes that consumers react to vehicle attributes when deciding which passenger automobile to purchase. The model estimates the probability of selecting a certain vehicle as a linear function of these attributes. As independent variables, if one or more of the attributes changes in magnitude, the vehicle selection probabilities change - resulting in a different distribution of passenger automobiles being selected by consumers. The attributes used by NHTSA were derived from a vehicle comparison table used by a website whose target audience is consumers seeking information about new vehicles (<http://www.edmunds.com/>). The dependent variable, total model year 2004 vehicle sales, was taken from pre-model year fuel economy reports filed with NHTSA by vehicle manufacturers.

Parameter estimates, which weight the relative importance of each attribute to consumers, are presented in Table B. Sales price, which in this case is an estimate of actual sales price rather than the manufacturer's suggested retail price, appears in every model. Other attributes include curb weight, the ratio of horse-power to vehicle weight, combined city/highway fuel economy, front shoulder room, rear leg room and luggage capacity. All these parameter estimates are statistically different from zero at well below the one percent confidence level. Attributes were chosen in terms of their ability to improve overall model fit and significance levels. The number of attributes varies from

simply price and the horsepower to weight ratio for sporty touring passenger automobiles, to the full set for upscale luxury passenger automobiles.

Table B – Multinomial Logit Model Estimation Results						
	Market Segment					
	Small Cars	Sporty Cars	Mid-Range Cars		Upscale Cars	
Vehicle Attribute	Economy	Touring	Standard	Premium	Near Luxury	Luxury
Price (\$)	-0.000024	-0.000116	-00.000910	-0.000119	-0.000139	-0.000040
Curb Weight (lbs)	N/A	N/A	N/A	N/A	0.00264 [withheld] **	0.00107
Horse Power/Weight (Total/lbs)	52.14890 [withheld] **	56.4525 [withheld] **	N/A	59.6702	80.1067	5.1241
Combined Fuel Economy (mpg)	0.280446	N/A	0.209363 [withheld] **	0.142656 [withheld] **	0.0985491	0.437070
Front Shoulder Room (sq inches)	0.321310	N/A	0.251289	0.142840	N/A	0.292574
Rear Leg Room (sq inches)	N/A	N/A	N/A	N/A	N/A	0.008040 [withheld] **
Luggage Capacity (sq inches)	0.008917	N/A	0.041169	0.058315	N/A	0.022454
** NHTSA has withheld the values of certain parameters in this table to protect confidential information that could be derived through reverse-engineering the MNL models.						

Before the MNL model was used to predict shifts in numbers of vehicles in each choice set, NHTSA considered how compliance costs would be spread across Nissan's fleet. In response to a request for supplemental data, Nissan responded that compliance costs are passed on exclusively to the vehicles that incur them. For example, if reductions in the domestic content of the Sentra were to cost \$7.4 million in 2006 and

112,695 are produced, the price change for a Sentra would be \$7.4 million divided by 112,695, or approximately \$65 per vehicle.

Although Nissan suggests a “pay as you go” approach to spreading compliance costs, our review of economic literature suggests that profit maximizing firms would “cross-subsidize” compliance costs incurred by cheaper, price sensitive commodities by raising the price of expensive, price insensitive commodities. In the case of automobiles, the demand for an economy passenger automobile such as a Nissan Sentra is likely to be much more driven by the price of the vehicle than the demand for a high priced luxury passenger automobile such as the Infiniti Q45 or IG35. Raising the price of luxury Nissan vehicles by \$65, or even \$130 would reflect a small change in their overall prices and would probably have little impact on the demand for these vehicles. On the other hand, raising Sentra prices by \$65 may have a relatively larger impact on the sales of that vehicle.

Changes in vehicle sales resulting from price changes were estimated by NHTSA by estimating the distribution of vehicles within each choice set before any price change. This is simply the probability that each passenger automobile is selected (from the MNL model) times the total number of vehicles in the choice set. As changes in the price of Nissan vehicles resulted in changes to the probabilities of vehicle choices, we then estimated the new distribution of vehicles after the price change. The new distribution of vehicles is simply the probability each vehicle is selected times the total number of vehicles in the choice set.

A more detailed description of the MNL model used by NHTSA is presented below:

To model the vehicle selection process, individuals are assumed to derive utility from vehicle attributes. Let q_j represent the choice of purchasing the j -th vehicle with a vector of $m = 1, \dots, M$ attributes $[x_{j1}, x_{j2}, \dots, x_{jM}]$. To evaluate the utility derived from purchasing this vehicle, assume $q_l = 0$ for all l not equal to j . The resulting optimization problem is:

$$(1) \quad \text{Max } u\{0, 0, \dots, q_j(x_{j1}, x_{j2}, \dots, x_{jM}), \dots, 0\} \text{ subject to: } y > c_j,$$

where y is the individual's income, c_j is the price of the j -th vehicle and $u(\cdot)$ is the individual's utility function. Solving (1) yields the bundle of attributes that would be purchased if individual were constrained to purchase the j -th vehicle. Substituting the demand functions into the utility function results in a conditional indirect utility function:

$$(2) \quad V_j = V_j(x_{1j}, \dots, x_{jM}, y, c_j) + e_j,$$

where e_j is an error term that reflects uncertainty on the part of the investigator, not the individual. This conditional indirect utility function is typically written as a linear function of attributes $X_j = [x_{1j}, \dots, x_{jM}]$, and income less vehicle cost ($y - c_j$):

$$(3) \quad V_j = AX_j + B(y - c_j) + e_j,$$

where A and B are parameters to be estimated. The parameter B has the interpretation of the marginal utility of income. The choice of which vehicle to purchase is made by choosing among the conditional indirect utility functions. The j -th vehicle will be chosen if:

$$(4) \quad AX_j + B(y - c_j) + e_j > AX_l + B(y - c_l) + e_l, \quad \text{for all } j \text{ not equal } l.$$

If the error terms are independently and identically distributed extreme value random variables, then the parameters of the indirect utility function can be estimated using a multinomial logit model (MNL):

$$(5) \quad P(j) = \exp(V_j) / [\exp(V_1) + \dots + \exp(V_n)] \quad \text{for all } j = 1, \dots, K$$

where $P(j)$ denotes the probability of choosing the j -th vehicle and K denotes the size of the choice set (number of different models). The resulting likelihood function is globally concave and easily estimated using any number of optimization techniques. MNL models are widely used to estimate demand when one, or a few items are chosen from a larger set of substitutable goods. These situations, commonly referred to as corner solutions, create difficulties in applying conventional demand estimation methods. In this application, estimating the demand for buying a particular vehicle would be difficult due to the fact that most individuals only purchase one vehicle. This results in a situation of zero demand for many vehicles at the consumer level. If the choice set is small, a switching regression approach can be applied. When the choice set exceeds three or four elements, this approach becomes very difficult. MNLs offer an attractive utility theoretic alternative to demand systems. Some applications of these models include automobile choice, transportation route and mode choice, recreational site choice, and food stamp program participation.

Appendix B

National Academy of Sciences (NAS) Fuel Economy Estimates					
Technology	FC (mpg)		Cost		Availability
	Low	High	Low	High	
Production-Intent Engine					
Engine Friction Reduction	1.0%	5.0%	\$ 35	\$ 140	2002
Low Friction Lubricants	1.0%	1.0%	\$ 8	\$ 11	2002
Multi-Valve, Overhead Camshaft	2.0%	5.0%	\$105	\$ 140	2002
Variable Valve Timing	2.0%	3.0%	\$ 35	\$ 140	2002
Variable Valve Lift & Timing	1.0%	2.0%	\$ 70	\$ 210	2002
Cylinder Deactivation	3.0%	6.0%	\$112	\$ 252	2002
Engine Accessory Improvement	1.0%	2.0%	\$ 84	\$ 112	2002
Engine Supercharging & Downsizing	5.0%	7.0%	\$350	\$ 560	2002
Production-Intent Transmission					
5-Speed Automatic Transmission	2.0%	3.0%	\$ 70	\$ 154	2002
Continuously Variable Transmission	4.0%	8.0%	\$140	\$ 350	2002
Automatic Transmission w/ Aggressive Shift Logic	1.0%	3.0%	\$ 0	\$ 70	2002
6-Speed Automatic Transmission	1.0%	2.0%	\$140	\$ 280	2002
Production-Intent Vehicle					
Aero Drag Reduction	1.0%	2.0%	\$ 0	\$ 140	2002
Improve Rolling Resistance	1.0%	1.5%	\$ 14	\$ 56	2002
Emerging Engine Technology					
Intake Valve Throttling	3.0%	6.0%	\$210	\$ 420	2007-2012
Camless Valve Actuation	5.0%	10.0%	\$280	\$ 560	2007-2012
Variable Compression Ratio	2.0%	6.0%	\$210	\$ 490	2007-2012
Emerging Transmission Technology					
Automatic Shift Manual Transmission (AST/AMT)	3.0%	5.0%	\$ 70	\$ 280	2007-2012
Advanced CVTs	0.0%	2.0%	\$350	\$ 840	2007-2012
Emerging Vehicle Technology					
42 Volt Electrical Systems	1.0%	2.0%	\$ 70	\$ 280	2007-2012
Integrated Starter/Generator	4.0%	7.0%	\$210	\$ 350	2007-2012
Electric power Steering	1.5%	2.5%	\$105	\$ 150	2007-2012
Vehicle Weight Reduction	3.0%	4.0%	\$ 210	\$ 350	2007-2012

FC = Fuel Consumption Improvement

Authority: 49 U.S.C. 32904, delegations of authority at [49 CFR 1.50](#).

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Jeffrey W. Runge, MD
Administrator

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