

## Chapter 8: Small Business Flexibility Analysis

This section presents our Small Business Flexibility Analysis (SBFA) which evaluates the impacts of the rule on small businesses. Prior to issuing our proposal, we analyzed the potential impacts of our program on small businesses. As a part of this analysis, we convened two Small Business Advocacy Review (SBAR) Panels, under the requirements of the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 USC 601 *et seq.* Through the two Panel processes, we gathered advice and recommendations from small entity representatives (SERs) who would be affected by the regulation. The two Panel reports have been placed in the rulemaking record.

### 8.1 Requirements of the Regulatory Flexibility Act

The Regulatory Flexibility Act was amended by SBREFA to ensure that concerns regarding small entities are adequately considered during the development of new regulations that affect them. Although we are not required by the Clean Air Act to provide special treatment to small businesses, the Regulatory Flexibility Act requires us to carefully consider the economic impacts that our proposed rules will have on small entities. In general, the Regulatory Flexibility Act calls for determining, to the extent feasible, a rule's economic impact on small entities, exploring regulatory options for reducing any significant economic impact on a substantial number of such entities, and explaining the ultimate choice of regulatory approach.

For purposes of assessing the impacts of this final rule on small entities, a small entity is defined as: (1) a small business that meet the definition for business based on SBA size standards; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. This rulemaking will only affect the small businesses.

When proposing rules subject to notice and comment under the Clean Air Act, we are generally required under the Regulatory Flexibility Act to conduct an Initial Regulatory Flexibility Analysis, unless we certify that the requirements of a regulation will not cause a significant impact on a substantial number of small entities. Although we are not required to conduct a Final Regulatory Flexibility Analysis (FRFA), EPA has decided to prepare an assessment of the impacts of the final rule on small entities. This SBFA would meet the requirements of a FRFA, were EPA required to prepare one.

In accordance with section 609 of the RFA, EPA conducted an outreach to affected small entities and convened a Small Business Advocacy Review (SBAR) Panel prior to proposing this rule, to obtain advice and recommendations of representatives of the small entities that potentially would be subject to the rule's requirements. Through the Panel process, we gathered advice and recommendations from small-entity representatives who would be affected by the regulation, and published the results in a Final Panel Report, dated July 17, 2001. EPA had previously convened a separate Panel for marine engines and vessels. This panel also produced a report,

dated August 25, 1999. We also prepared an Initial Regulatory Flexibility Analysis (IRFA) in accordance with section 603 of the Regulatory Flexibility Act. The IRFA is found in chapter 8 of the Draft Regulatory Support Document. Both Panel reports and the IRFA have been placed in the docket for this rulemaking (Public Docket A-2000-01, items II-A-85, II-F-22, and III-B-01).

We proposed the majority of the Panel recommendations, and took comments on this and other issues. The information we received during the course of the rulemaking indicated that fewer small entities than we had first estimated would be significantly impacted by the rule. During the SBAR Panel process, we were concerned that ATV and off-highway motorcycle importers would have limited access to certified models for import. We received no comments confirming this concern and believe that the use of cleaner four-stroke engines in these vehicles will continue to increase. As a result, we believe all these small companies should be able to find manufacturers that are able to supply compliant engines for import into the U.S. These importers incur no development costs, and they are not involved in adding emission-control hardware or other variable costs to provide a finished product to market. We also expect that importers would select vehicles for import that have fuel tanks and hoses that comply with the permeation standards. However, even if they were not able to find such vehicles, the few additional dollars per vehicle that it would cost to bring them into compliance with the permeation standards is insignificant in comparison with the normal selling prices for these vehicles. They should therefore expect to buy and sell their products with the normal markup to cover their costs and profit. As noted below, we expect all 21 known small-business importers to face compliance costs of less than one percent of their revenues. Thus, EPA has determined that this final rule will not have a significant economic impact on a substantial number of small entities. Also, as a result of comments received on the proposal, we are finalizing changes that we believe will further reduce the level of impact to small entities directly regulated by the rule. These changes and can be found below in Section 8.6, "Steps Taken to Minimize the Economic Impact on Small Entities."

The key elements of the Small Business Flexibility Analysis include:

- the need for and objectives of the rule;
- the significant issues raised by public comments, a summary of the Agency's assessment of those issues, and a statement of any changes made to the rule as a result of those comments;
- the types and number of affected small entities to which this rule will apply;
- the projected reporting, record keeping, and other compliance requirements of the regulation, including the classes of small entities that would be affected and the type of professional skills necessary for preparation of the report or record;
- the steps taken to minimize the economic impacts of the regulation on small entities, consistent with the stated objectives of the applicable statutes.

## 8.2 Need For and Objectives of the Rule

The process of establishing standards for nonroad engines began in 1991 with a study to determine whether emissions of carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), and volatile organic compounds (VOCs) from new and existing nonroad engines, equipment, and vehicles are significant contributors to ozone and CO concentrations in more than one area that has failed to attain the national ambient air quality standards for ozone and CO.<sup>1</sup> In 1994, EPA finalized its finding that nonroad engines as a whole “are significant contributors to ozone or carbon monoxide concentrations” in more than one ozone or carbon monoxide nonattainment area.<sup>2</sup>

Upon making this finding, the Clean Air Act (CAA or the Act) requires EPA to establish standards for all classes or categories of new nonroad engines that cause or contribute to air quality nonattainment in more than one ozone or carbon monoxide (CO) nonattainment area. Since the finding in 1994, EPA has been engaged in the process of establishing programs to control emissions from nonroad engines used in many different applications. Nonroad categories already regulated include:

- Land-based compression ignition (CI) engines (e.g., farm and construction equipment),
- Small land-based spark-ignition (SI) engines (e.g., lawn and garden equipment, string trimmers),
- Marine engines (outboards, personal watercraft, CI commercial, CI engines <37kW)
- Locomotive engines

On December 7, 2000, EPA issued an Advance Notice of Proposed Rulemaking (ANPRM), and then issued a Notice of Proposed Rulemaking (NPRM) on September 14, 2001. This final rule continues the process of establishing standards for nonroad engines and vehicles, as required by CAA section 213(a)(3), with new emission standards for recreational marine diesel engines, recreational vehicles, and other nonroad spark-ignition engines over 19 kW.

## 8.3 Issues Raised by Public Comments

The two SBAR Panels considered a wide range of options and regulatory alternatives for providing small businesses with flexibility in complying with the regulation. As part of the process, the Panels requested and received comment on several ideas for flexibility that were suggested by SERs and Panel members. The major options recommended by the Panel can be found in Section 9 of the Panel Reports.

Many of the flexible approaches recommended by the Panels can be applied to several of

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<sup>1</sup> “Nonroad Engine and Vehicle Emission Study—Report and Appendices,” EPA-21A-201, November 1991 (available in Air docket A-91-24). It is also available through the National Technical Information Service, referenced as document PB 92-126960.

<sup>2</sup> 59 FR 31306 (July 17, 1994).

the equipment categories that may be affected by the regulation. However, during the consultation process, it became evident that, in a few situations, it could be helpful to small entities if unique provisions were available. Three such provisions are described below.

(a) Snowmobiles: The Panel recommended that EPA seek comment on a provision allowing small snowmobile manufacturers to request a relaxed standard for one or more engine families, up to 300 engines per year, until the family is retired or modified, if such a standard is justifiable based on the criteria described in the Panel report. Based on comments received, we have adopted this provision, increasing the sales allowance to 600 engines per year.

(b) ATVs and Off-road Motorcycles: The Panel recommended that the hardship provision for ATVs and off-road motorcycles allow for annual review of the relief for up to two years for importers to obtain complying products. We are adopting this provision.

(c) Large SI: The Panel recommended that small entities be granted the flexibility initially to reclassify a small number of their small displacement engines into EPA's small spark-ignition engine program (40 CFR part 90). Small entities would be allowed to use those requirements instead of the requirements we adopt for large entities. We are not adopting this provision, preferring instead to rely on the more flexible approach provided under the hardship provisions. Since there are only two companies affected, we believe this approach best addresses these concerns.

The Panel also crafted recommendations to address SERs' concerns that ATV and off-road motorcycle standards that essentially required manufacturers to switch to four-stroke engines might increase costs to the point that many small importers and manufacturers could experience significant adverse effects. The Panel recommended that EPA request comment in its proposed rule on the effect of the regulation on these small entities, with the specific intent of developing information—including the extent to which sales of their products would likely to be reduced in response to changes in product price attributable to the standards—that could be used to inform a decision in the final rule as to whether EPA should provide additional flexibility beyond that considered by the Panel. We received no comments addressing this concern and therefore believe that the use of four-stroke engines for ATVs and off-highway motorcycles will continue to increase; as a result all these companies should be able to find manufacturers that are able to supply compliant engines into the U.S. market.

In the NPRM for this rule, we proposed only exhaust emission controls for recreational vehicles. However, several commenters raised the issue of control of evaporative emissions related to permeation from fuel tanks and fuel hoses, and indicated that our obligations under section 213 of the Clean Air Act included control of permeation emissions. The commenters pointed to work done by the California Air Resources Board (ARB) on permeation emissions from plastic fuel tanks and rubber fuel line hoses for various types of nonroad equipment, as well as portable plastic fuel containers, as evidence of a new emissions concern. Our own investigation into the hydrocarbon emissions related to permeation of fuel tanks and fuel hoses from recreational land-based and marine applications supports the concerns raised by the commenters.

Therefore, on May 1, 2002, we published a notice in the Federal Register reopening the comment period and requesting comment on possible approaches to regulating permeation emissions from recreational vehicles. The notice provided a detailed analysis of possible approaches to regulating permeation emissions and the expected costs and emission reductions from these approaches. The notice also cited sample regulation language that could be used if we decided to finalize such requirements. Commenters had thirty days from May 1, 2002 to provide comments on the notice. We received comments from several affected manufacturers during the comment period, including at least one small entity. These comments have been addressed in the final Summary and Analysis of Comments document, and we have made several changes to the rule in response to suggestions of the commenters.

We received a number of other comments from engine and equipment manufacturers and consumers during the comment period after we issued the NPRM. A number of small engine and equipment manufacturers commented on the financial hardships they would face in complying with the proposed regulations. Most requested that we consider a number of hardship provisions, primarily an exemption from or a delay in the implementation of the proposed standards, or certain flexibilities in the certification process. Due to the wide variety of engines, vehicles, and equipment covered by this rulemaking, we decided that a variety of provisions were needed to address the concerns of the small entities involved. A summary of the comments pertaining to these small entity issues can be found in our Final Summary and Analysis of Comments document contained in the public docket for this rulemaking. Changes to the proposal as a result of SER or other comments are noted below in section 8.6 for each of the sectors affected by this rule.

## **8.4 Description of Affected Entities**

Table 8.4-1 provides an overview of the primary SBA small business categories potentially affected by this regulation.

**Table 8.4-1  
Primary SBA Small Business Categories Potentially Affected by this Regulation**

Industry	NAICS <sup>a</sup> Codes	Defined by SBA as a Small Business If: <sup>b</sup>
Motorcycles and motorcycle parts manufacturers	336991	<500 employees
Snowmobile and ATV manufacturers	336999	<500 employees
Independent Commercial Importers of Vehicles and parts	421110	<100 employees
Nonroad SI engines	333618	<1,000 employees
Internal Combustion Engines	333618	<1000 employees
Boat Building and Repairing	336612	<500 employees

a. North American Industry Classification System

b. According to SBA's regulations (13 CFR part 121), businesses with no more than the listed number of employees or dollars in annual receipts are considered "small entities" for purposes of a regulatory flexibility analysis.

#### **8.4.1 Recreational Vehicles (ATVs, off-highway motorcycles, and snowmobiles)**

The ATV sector has the broadest assortment of manufacturers. There are seven companies, Bombardier, Honda, Polaris, Kawasaki, Yamaha, Suzuki, and Arctic Cat, representing over 95 percent of total domestic ATV sales. The remaining 5 percent come from one small manufacturer, IPC, and a number of importers who tend to import inexpensive, youth-oriented ATVs from China and other Asian nations.. EPA has identified 21 small companies (as defined in Table 8.4.1, above) that offer off-road motorcycles, ATVs, or both products. Annual unit sales for these companies can range from a few hundred to several thousand units per year.

We expect all 21 known small-business importers to face compliance costs less than one percent of their revenues. These companies incur no development costs and they are not involved in adding emission-control hardware or other variable costs to provide a finished product to market. As a result, they should expect to buy and sell their products with the normal mark-up to cover their costs and profit. During the SBAR Panel process, we were also concerned that importers would have limited access to certified models for import. We received no comments confirming this concern and believe that the supply of four-stroke engines for ATVs and off-highway motorcycles will continue to increase; as a result all these companies should be able to find manufacturers that are able to supply compliant engines into the U.S. market. We also received no comments regarding the permeation standards issue, and believe that the importers will simply purchase compliant models and pass the costs on to the ultimate consumers.

Five large manufacturers, Honda, Kawasaki, Yamaha, Suzuki, and KTM. accounted for approximately 85 percent of all off-highway motorcycle production for sale in the U.S. There are three small business manufacturing off-highway motorcycles in the U.S. Two of these companies

make only competition models, so they don't need to certify their products under this regulation. ATK already offers engines that should be meeting the new emission standards, especially under our provisions allowing design-based certification, so we estimate that their compliance costs will be much less than one percent of their revenues.

IPC is the only small business manufacturing ATVs, offering two separate youth ATV models. IPC already uses four-stroke engines. Moreover, the standards are based on emissions per kilometer, which are easier to meet for models with small-displacement engines. We estimate compliance costs of about \$50,000 for R&D plus \$15,000 for certification, which is much less than 1 percent of IPC's annual revenues.

We do not believe that compliance with the permeation standards will place a significant burden on either the small manufacturers or on the importers. We have estimated the cost of compliance for ATVs and off-highway motorcycles at roughly three dollars per vehicle for the fuel hoses and surface coating for the fuel tank. This estimate includes shipping, and is based on buying the necessary hoses and surface treatment for the fuel tanks from outside suppliers. Thus, no capital outlays are required, and the increase in vehicle cost is insignificant, so that it can easily be passed along to the ultimate consumer. However, to ensure that these requirements do not adversely affect small manufacturers, we are implementing, where they are applicable to permeation, the same flexibility options we proposed for the exhaust emission standards.

Based on available industry information, four major manufacturers, Arctic Cat, Bombardier (also known as Ski-Doo), Polaris, and Yamaha, account for over 99 percent of all domestic snowmobile sales. The remaining one percent comes from very small manufacturers who tend to specialize in unique and high performance designs. There is also one potential manufacturer (Redline), which we have learned is owned by a larger entity (TMAG) and is therefore not a small business, that hopes to produce snowmobiles within the next year.

We are aware of five small businesses that have been producing snowmobiles. Two of these have discontinued production since we completed the SBAR panel. Two of the remaining three manufacturers (Crazy Mountain and Fast, Inc.) specialize in high performance versions of standard recreational snowmobile types (i.e., travel and mountain sleds). The other manufacturer (Fast Trax) produces a unique design, which is a scooter-like snowmobile designed to be ridden standing up. Most of these manufacturers build less than 50 units per year.

Fast, Inc. produces four engine models, one of which is a four-stroke design. The four-stroke engine will need no development or certification work, since we allow design-based certification for this situation. We expect the two-stroke engines to qualify for the special standards that apply to small businesses. As a result, Fast will have only limited development costs to reduce emissions from these engines. We estimate a total of \$75,000 in R&D and \$15,000 for certification for each of the three engine families. They are projecting sales of around 1,000 units for the time when standards would apply. Since this is a substantial increase over their current volume of 180 per year, we base revenue calculations on projected sales of only 500 per year. The resulting calculation shows a compliance burden less than one percent.

Fast, Inc. was the only recreational vehicle manufacturer to comment on the permeation provisions contained in the May 1 notice. Fast stated that, as a small manufacturer of snowmobiles, they would undergo additional hardship due to this rule, because they do not have the sales volume to warrant installing the barrier treatment equipment for fuel tanks. They also commented that shipping and processing of fuel tanks by an outside vendor could take 3-4 months, and that as a small business it would be unworkable for them to tie up funds for such a long period.

We agree that it is neither necessary nor cost-effective for a small manufacturer to make the capital investment necessary for an in-house treatment facility, given the relatively low cost of the compliance with the requirements and the availability of materials and treatment support by outside vendors. Low permeation fuel hoses are available from vendors today, and we would expect that surface treatment would be applied through an outside company. The \$5 to \$7 per vehicle incremental cost resulting from the permeation requirements is insignificant compared to the price of one of these high-end sleds, and should not pose a significant cash-flow problem, particularly in view of the likely sales volumes involved. These costs are based on vendor costs, including shipping charges.

Since the costs are low and no capital investment is required, we believe that the permeation control requirements should be relatively easy for small businesses to meet. However, to make sure that these requirements do not adversely affect small entities, we are implementing, where they are applicable to permeation, the same flexibility options we proposed for the recreational vehicle exhaust emission standards. These flexibility options included a 2 year delay of the standards, design-based certification, broader engine families, waiving production line testing, use of assigned deterioration factors, carryover of certification data, ABT, and hardship provisions. These are further described below in section 8.6.. Given the low costs and these flexibilities, there should be no significant economic impact on small entities.

Crazy Mountain produces only about 20 snowmobiles per year in addition to their more extensive business in aftermarket parts and accessories for snowmobiles from other manufacturers. We don't have revenue information for the whole company, but we expect that total costs of redesigning and certifying their single model will exceed 3 percent of snowmobile revenues. However, with its low production volume, Crazy Mountain could likely qualify for the special standards that apply to small businesses.

Fast Trax provided no response to repeated outreach efforts to determine potential economic effects of the final rule. We expect them to purchase compliant engines, which would result in a compliance burden of less than one percent. Due to the small engine displacements used in current models, we would expect these engines to be certified to the Small SI standards.

#### **8.4.2 Large Spark Ignition Engines**

The Panel was aware of one engine manufacturer of Large SI engines that qualifies as a small business. Westerbeke plans to produce engines that meet the standards adopted by CARB in 2004, with the possible exception of one engine family. If EPA adopts long-term standards, this would require manufacturers to do additional calibration and testing work. If EPA adopts



new test procedures (including transient operation), there may also be a cost associated with upgrading test facilities. We expect that Westerbeke will face relatively small compliance costs as a result of this rule, since the California-compliant engines will need only a small amount of additional development effort to meet the long-term standards. We estimate that they will need \$200,000 each for two engine families, with a potential need to spend an additional \$300,000 for upgrading test cells. These costs are less than one percent of their annual revenues.

Since we completed the proposal Wisconsin Motors, a small business, bought the assets of a company that had gone bankrupt. This company did not exist during the SBAR Panel process associated with this rule. Through public comments and other outreach efforts, this company has stated that it faces significant development costs, though much of this effort is required to improve the engine enough to sustain a market presence as other manufacturers continue to make improvements to competitive engines. Under the hardship provisions, we expect them to spread compliance costs over several years to reduce the impact of emission standards. Wisconsin should be able to delay compliance until they are able to retool for production and add developmental efforts to incorporate emission-control technologies. Substantial tooling expenses will be necessary independent of emission standards. We estimate a need for \$500,000 for emission-measurement facilities and \$500,000 of development costs for each of two engine models. New testing to certify and show compliance on these models comes to about \$50,000 total. These costs are about 4 percent of the projected revenues for the time frame when Wisconsin will be certifying their engines. Since this manufacturer is operating in a niche market with customers providing public comments citing the need for these engines, we expect that most of the increased cost of production will be recovered by increased revenues.

### **8.4.3 Marine Vessels**

Marine vessels include the boat, engine, and fuel system. Exhaust emission controls including NTE requirements, as addressed in the two Panel Reports, would affect the engine manufacturers and may affect boat builders.

#### **8.4.3.1 Small Diesel Engine Marinizers**

We have determined that there are at least 16 companies that manufacture diesel engines for recreational vessels. Nearly 75 percent of diesel engines sales for recreational vessels in 2000 can be attributed to three large companies. Six of the 16 identified companies are considered small businesses as defined by SBA. Based on sales estimates for 2000, these six companies represent approximately 4 percent of recreational marine diesel engine sales. The remaining companies each comprise between two and seven percent of sales for 2000.

We are thus aware of six small businesses that may produce recreational marine diesel engines. Alaska Diesel and Westerbeke do not offer recreational versions of the marine diesel engines that are different than their commercial products. The regulations allow manufacturers to certify all their products under the commercial standards, even if they may be used in recreational applications. As a result, these companies would likely minimize their costs by certifying all their products to the commercial standards. We therefore believe that they will experience no

significant new compliance costs for these engines as a result of this regulation. Daytona has, to the best of our knowledge, discontinued production of their marine product line.

For those companies that will be certifying recreational marine diesel engines, we directly apply the development and certification costs from Chapter 5. For each engine family, we estimate \$200,000 of development costs and \$30,000 of certification costs. The variable costs considered in Chapter 5 are very small relative to the price of the engines, so we would expect manufacturers to fully recover these costs over time.

American Diesel is a small business for which we were unable to identify gross revenues. However, based on the fact that they reported an employee count of 17, we can reasonably estimate their business volume. They produce a single engine model, so their total estimated fixed costs are \$230,000. For compliance costs to fall in the range of 1 to 3 percent of annual revenues, total revenues would need to be between \$2.5 and \$7.6 million. This is a reasonable estimate compared to other companies producing these engines with a similar number of employees.

Marine Power also sells only a single model. Comparing fixed costs (spread over three years) to their estimated annual revenues of \$10 million shows that their compliance burden is 0.8 percent of revenues.

Peninsular Diesel has annual revenues of about \$2 million from three employees. They also sell a single engine model. Their estimated compliance burden is 3.8 percent of revenues.

#### **8.4.3.2 Small Recreational Boat Builders**

We have less precise information about recreational boat builders than is available about engine manufacturers. We have utilized several sources, including trade associations and Internet sites when identifying entities that build or sell recreational boats. We have also worked with an independent contractor to assist in the characterization of this segment of the industry. Finally, we received a list of nearly 1,700 boat builders known to the U.S. Coast Guard to produce boats using engines for propulsion. More than 90% of the companies identified so far would be considered small businesses as defined by SBA (NAIC code 336612).

#### **8.4.4 Results for All Small entities**

For this regulation as a whole, we expect 32 small businesses to have total compliance costs less than 1 percent of their annual revenues. We estimate that one company will have compliance costs between 1 and 3 percent of revenues. Three companies will likely have compliance costs exceeding 3 percent of revenues, but at least one will likely be able to benefit from the relief provisions outlined below. These estimates include the costs for compliance with the permeation standards.

## **8.5 Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Regulation**

For any emission control program, we be sure that the regulated engines will meet the standards. Historically, EPA programs have included provisions placing manufacturers responsible for providing these assurances. This final rule includes testing, reporting, and record keeping requirements. Testing requirements for some manufacturers include certification (including deterioration testing), and production-line testing. Reporting requirements include test data and technical data on the engines including defect reporting. Manufacturers keep records of this information.

## **8.6 Steps to Minimize Significant Economic Impact on Small Entities**

EPA conducted outreach to small entities and convened two Small Business Advocacy Review Panels to obtain advice and recommendations of representatives of the small entities that potentially would be subject to the rule's requirements. The first panel covered only marine engines and vessels. That Panel published its report on August 29, 1999, and where appropriate, its recommendations have been incorporated into this analysis. In a subsequent Federal Register notice dated May 2, 2002 (67 FR 21613), EPA sought comment on applying permeation control standards for fuel tanks and fuel hoses used on recreational vehicles. These provisions would generally apply to those controls as well.

On May 3, 2001, EPA's Small Business Advocacy Chairperson convened a second Panel covering all engine/vehicle categories in this rulemaking, under Section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA). In addition to the Chair, the Panel consisted of the Director of the Assessment and Standards Division (ASD) within EPA's Office of Transportation and Air Quality, the Chief Counsel for Advocacy of the Small Business Administration, and the Deputy Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget. As part of the SBAR process, the Panel met with small entity representatives (SERs) to discuss the potential emission standards and, in addition to the oral comments from SERs, the Panel solicited written input. In the months preceding the Panel process, EPA conducted outreach with small entities from each of the five sectors as described above. On May 18, 2001, the Panel distributed an outreach package to the SERs. On May 30 and 31, 2001, the Panel met with SERs to hear their comments on preliminary alternatives for regulatory flexibility and related information. The Panel also received written comments from the SERs in response to the discussions at this meeting and the outreach materials. The Panel asked SERs to evaluate how they would be affected under a variety of regulatory approaches, and to provide advice and recommendations regarding early ideas for alternatives that would provide flexibility to address their compliance burden.

SERs representing companies in each of the sectors addressed by the Panel raised concerns about the potential costs of complying with the rules under development. For the most part, their concerns were focused on two issues: (1) the difficulty (and added cost) that they would face in complying with certification requirements associated with the standards EPA is

developing, and (2) the cost of meeting the standards themselves. SERs observed that these costs would include the opportunity cost of deploying resources for research and development, expenditures for tooling/retooling, and the added cost of new engine designs or other parts that would need to be added to equipment in order to meet EPA emission standards. In addition, in each category, the SERs noted that small manufacturers (and in the case of one category, small importers) have fewer resources and are therefore less well equipped to undertake these new activities and expenditures. Furthermore, because their product lines tend to be smaller, any additional fixed costs must be recovered over a smaller number of units. Thus, absent any provisions to address these issues, new emission standards are likely to impose much more significant adverse effects on small entities than on their larger competitors.

The Panel discussed each of the issues raised in the outreach meetings and in written comments by the SERs. The Panel agreed that EPA should consider the issues raised by the SERs and that it would be appropriate for EPA to propose and/or request comment on various alternative approaches to address these concerns. The Panel's key discussions centered around the need for and most appropriate types of regulatory compliance alternatives for small businesses. The Panel considered a variety of provisions to reduce the burden of complying with new emission standards and related requirements. Some of these provisions would apply to all companies (e.g., averaging, banking, and trading), while others would be targeted at the unique circumstances faced by small businesses. A complete discussion of the regulatory alternatives recommended by the Panel can be found in the Final Panel Report. Summaries of the Panel's recommended alternatives for each of the sectors subject to this action can be found in their respective sections of the preamble. The vast majority of the Panel recommendations were adopted by the Agency, and are being finalized as part of this rule, either as first-tier or second-tier flexibilities.

First-tier flexibilities provide the greatest flexibility for many small entities. These provisions are likely to be most valuable because they either provide more time for compliance (e.g., additional lead time and hardship provisions) or allow for certification of engines based on particular engine designs or certification to other EPA programs. We are adopting these provisions essentially as proposed.

Second-tier flexibilities have the potential to reduce near-term and even long-term costs once a small entity has a product it is preparing to certify. These are important in that the costs of testing multiple engine families, testing a fraction of the production line, and developing deterioration factors can be significant. Small businesses may also meet an emission standard on average or generate credits for producing engines that emit at levels below the standard; these credits can then be sold to other manufacturers for compliance or banked for use in future model years. We are adopting these provisions essentially as proposed.

### **8.6.1 General Provisions**

The most universal of the first-tier flexibilities are the hardship provisions. These apply to all the categories of vehicles and engines covered by this rulemaking. The Panel recommended that we propose two types of hardship provisions. The first type allows small businesses to pe-

tion EPA for additional lead time (e.g., up to 3 years) to comply with the standards. To qualify, a small manufacturer must make the case that it has taken all possible business, technical, and economic steps to comply, but that the burden of compliance costs will have a significant impact on the company's solvency. A manufacturer must provide a compliance plan detailing when and how it will achieve compliance with the standards. Hardship relief may include requirements for reducing emission on an interim basis and/or purchasing and using emission credits. The length of the hardship relief decided during review of the hardship application may be up to one year, with the potential to extend the relief as needed. The second hardship program allows companies to apply for hardship relief if circumstances outside their control cause the failure to comply (i.e., supply contract broken by parts supplier) and if the failure to sell the subject engines will have a major impact on the company's solvency. We would, however, not grant hardship relief if contract problems with a specific company prevent compliance for a second time.

Since equipment manufacturers who don't manufacture their own engines depend on engine manufacturers to supply certified engines, there was a concern that these engines would not be received in time to produce complying equipment by the date emission standards take effect. We have heard of certified engines being available too late for equipment manufacturers to redesign their equipment for changing engine size or performance characteristics. To address this concern, equipment manufacturers may request up to one extra year before using certified engines if they are not at fault and will face serious economic hardship without an extension.

A second-tier of flexibility, the averaging, banking and trading (ABT) program is also almost universal in its applicability. Averaging programs allow a manufacturer to certify one or more engine families at emission levels above the applicable emission standards, provided that the increased emissions are offset by one or more engine families certified below the applicable standards. Adding an emission-credit program containing banking and trading provisions, allow manufacturers to generate emission credits for certifying below the standards, and bank them for future use in their own averaging program or sell them to another entity.

ABT programs are being finalized for all categories of vehicles and engines covered by this rule, except for Large SI engines. However, a simplified ABT variation, which we are calling "family banking," will allow Large SI manufactures to certify an engine family early, and then to delay certification of a comparable engine family to the Phase 1 standards. ABT provisions are not limited to small entities, but provide another flexibility for reducing the burden on these entities.

## **8.6.2 Nonroad recreational vehicles**

As described above, the report of the Small Business Advocacy Review Panel addresses the concerns of small-volume manufacturers of recreational vehicles. To identify representatives of small businesses for this process, we used the definitions provided by the Small Business Administration for producers and importers of motorcycles, ATVs, and snowmobiles (fewer than 500 employees for manufacturers, 100 for importers). Eleven small businesses agreed to serve as small-entity representatives. These companies represented a cross-section of off-highway motorcycle, ATV, and snowmobile manufacturers, as well as importers of off-highway motorcycles

and ATVs. We proposed to adopt the provisions recommended by the panel and received comments on the proposals. We are now finalizing the provisions below essentially as proposed, with the modifications noted below.

As noted above, permeation standards were not part of the original NPRM for this rule, which incorporated recommendations from the SBAR Panel process. When we reopened the comment period on May 1, 2002 to request comment on possible approaches to regulating permeation emissions from recreational vehicles, we did not specifically discuss small business issues. However, it was our intent that the proposed flexibilities for exhaust emissions should carry over to permeation controls for all three vehicle categories, to the extent that they are applicable, and we are finalizing these flexibilities for the permeation standards as well as for the exhaust standards. Thus, we are effectively extending the work of the SBAR panel to cover the permeation requirements in this final rule by including the flexibilities described below.

The following Panel recommendations apply to nonroad motorcycles, ATVs and snowmobiles. The Panel recommended that EPA restrict the flexibilities described below for off-road motorcycle and ATV engines to those produced or imported by small entities with combined annual sales of less than 5,000 units per model year. Because of the differences, both in numbers and production, between small snowmobile manufacturers and small ATV/off-road motorcycle manufacturers, the Panel recommended no maximum production limits for snowmobiles.

Additional lead time. The Panel recommended that EPA propose at least a two-year delay, but seek comment on whether a longer time period is appropriate given the costs of compliance for small businesses and the relationship between importers and their suppliers. This would provide additional time for small-volume manufacturers to revise their manufacturing process, and would allow importers to change their supply chain to acquire complying products. The Panel recommended that EPA request comment on the appropriate length for a delay (lead-time). We are finalizing a two year delay beyond the date that larger businesses must comply with the standards for the Phase 1, and (in the case of snowmobiles) Phase 2 and Phase 3 standards.

Design-based certification. The Panel recommended that EPA propose to permit small entities to use design certification. The Panel also recommended that EPA work with the small-entity representatives and other members of the industry to develop appropriate criteria for such design-based certification. We are finalizing this recommendation. Small-volume manufacturers may use design-based certification, which allows us to issue a certificate to a small business for the emission-performance standard based on a demonstration that engines or vehicles meet design criteria rather than by emission testing. The intent is to demonstrate that an engine using a design similar to or superior than that being used by larger manufacturers to meet the emission standards will ensure compliance with the standards. The demonstration must be based in part on emission test data from engines of a similar design. Under a design-based certification program, a manufacturer provides evidence in the application for certification that an engine or vehicle meets the applicable standards for its useful life based on its design (e.g., the use a four-stroke engine, advanced fuel injection, or any other particular technology or calibration). Design criteria might include specifications for engine type, calibrations (spark timing, air /fuel ratio,

etc.), and other emission-critical features, including, if appropriate, catalysts (size, efficiency, precious metal loading). Manufacturers submit adequate engineering and other information about their individual designs showing that they will meet emission standards for the useful life.

Broaden engine families. The Panel recommended that EPA request comment on engine family flexibility, in addition to conducting design-based certification emissions testing. Under this provision, small businesses may define their engine families more broadly, putting all their models into one engine family (or more, as needed) for certification purposes. Manufacturers could then certify their engines using the “worst-case” configuration within the family. A small manufacturer who might need to conduct certification emission testing, rather than pursuing design-based certification, would likely find broadened engine families useful

Production-line testing (PLT) waiver. The Panel recommended that EPA propose to provide small manufacturers and small importers a waiver from manufacturer production line testing. The Panel also recommended that EPA request comment on whether limits or the scope of this waiver are appropriate. Under PLT, manufacturers must test a small sampling of production engines to ensure that production engines meet emission standards. We are waiving production-line testing requirements for small manufacturers. This waiver will eliminate production-line testing requirements for small businesses.

Use of assigned deterioration factors (DFs) for certification. The Panel recommended that EPA propose to provide small business with the option to use assigned deterioration factors. Small manufacturers may use DFs assigned by EPA. Rather than performing a durability demonstration for each family for certification, manufacturers may elect to use deterioration factors determined by us to demonstrate emission levels at the end of the useful life, thus reducing the development and testing burden. This might also be a very useful and cost-beneficial option for a small manufacturer opting to perform certification emission testing instead of design-based certification.

Using emission standards and certification from other EPA programs. A wide array of engines certified to other EPA programs may be used in recreational vehicles. For example, there is a large variety of engines certified to EPA lawn and garden standards (Small SI). The Panel recommended that EPA propose to provide small business with this flexibility through the fifth year of the program and request comment on which of the already established standards and programs are believed to be a useful certification option for the small businesses. We are accepting that recommendation. Manufacturers of recreational vehicles may use engines certified to any other EPA standards for five years. Under this approach, engines certified to the Small SI standards may be used in recreational vehicles, even though the recreational vehicle application may not be the primary intended application for the engine. These engines would then meet the Small SI standards and related provisions rather than those adopted in this document for recreational vehicles. Small businesses using these engines will not have to recertify them, as long as they do not alter the engines in a way that might cause it to exceed the emission standards it was originally certified to meet. Naturally, a small manufacturer may also use a comparable certified engine produced by a large manufacturer, as long as the small manufacturer did not change the

engine in a way that might cause it to exceed the applicable emission standards. This provides a reasonable degree of emission control. For example, if a manufacturer changed a certified engine only by replacing the stock exhaust pipes with pipes of similar configuration or the stock muffler and air intake box with a muffler and air box of similar air flow, the engine would still be eligible for this flexibility option, subject to our review.

Averaging, banking, and trading (ABT). The Panel recommended that EPA propose to provide small business with the same ABT program flexibilities that would apply for large manufacturers and request comment on how the provisions could be enhanced for small business to make them more useful. For the overall program, we are adopting corporate-average emission standards with opportunities for banking and trading of emission credits. At first we expect the averaging provisions to be most helpful to manufacturers with broad product lines. Small manufacturers and small importers with only a few models might not have as much opportunity to take advantage of these flexibilities. However, we received comment from one small manufacturer supporting these types of provisions as a critical component of the program. Therefore, we are adopting corporate-average emission standards with opportunities for banking and trading of emission credits for small manufacturers.

#### **8.6.2.1 Off-highway motorcycles and ATVs**

In addition to ABT, EPA is finalizing other provisions that are not limited to small entities, but which could prove helpful to small businesses. Small entities could benefit from harmonization of the ATV standards with California emission standards since only one model, rather than two, would need to be certified to allow the product to be sold in all 50 states. Similarly, the 2 gram and the optional 4 gram HC +NO<sub>x</sub> emission standards for off-highway motorcycles could make it less costly for small entities to comply with the standards, in addition to their primary purposes of preventing product shortages and encouraging certification of competition bikes. The optional 4 gram HC + NO<sub>x</sub> standard in fact was suggested in the comments submitted by a small manufacturer. Finally, small ATV producers could benefit from the option of complying with engine-based emission standards using the SAE J1088 test procedure for three years. This flexibility could allow small entities to phase in major equipment purchases such as chassis dynamometers necessary to be able to run the Federal Test Procedure.

As stated earlier, we are applying the flexibilities outlined above in section 8.6.2 to engines produced or imported by small entities with combined off-highway motorcycle and ATV annual sales of fewer than 5,000 units. The SBAR Panel recommended these provisions to address the potentially significant adverse effects on small entities of an emission standard that may require conversion to four-stroke engines. The 5,000-unit threshold is intended to provide these flexibilities to those segments of the market where the need is likely to be greatest, and to ensure that the flexibilities do not result in significant adverse environmental effects during the period of additional lead-time recommended below. For example, some importers with access to large supplies of vehicles from major overseas manufacturers could substantially increase their market share by selling less expensive noncomplying products. In addition, we are limiting some or all of these flexibilities to companies that are in existence or have product sales at the time we proposed emission standards to avoid creating arbitrary opportunities in the import sector, and to



guard against the possibility of corporate reorganization, entry into the market, or other action for the sole purpose of circumventing emission standards.

### **8.6.2.2 Snowmobiles**

As in the case of off-highway motorcycles and ATVs, small snowmobile manufacturers may benefit from provisions set for both large and small manufacturers. Small entities could benefit from the pull ahead standards provision, whereby a manufacturer could certify to the Phase 2 standards and bypass the Phase 1 standards. There are special snowmobile ABT provisions that could also be helpful to small entities. The early credit provision, where manufacturers could generate credits by marketing clean snowmobiles earlier than 2006, and the elimination of FEL limits for Phase 1 are the prime examples. However, Even with these and the broad flexibilities for all recreational vehicles described above in section 8.6.2, there may be a situation where a small snowmobile manufacturer cannot comply. There are only a few small snowmobile manufacturers, who sell only a few hundred sleds a year, which represents less than 0.5 percent of total annual production. Therefore, the per-unit cost of regulation may be significantly higher for these small entities because they produce very low volumes. Additionally, these companies do not have the design and engineering resources to tackle compliance with emission standard requirements at the same time as large manufacturers and tend to have limited ability to invest the capital necessary to conduct emission testing related to research, development, and certification. Finally, some of the requirements of the snowmobile program may be infeasible or highly impractical because some small-volume manufacturers may have typically produced engines with unique designs or calibrations to serve niche markets (such as mountain riding). The new snowmobile emission standards may thus impose significant economic hardship on these few manufacturers whose market presence is small. We therefore believe significant additional flexibility for these small snowmobile manufacturers is necessary and appropriate, as described below.

Additional lead time. The Panel recommended that EPA propose to delay the standards for small snowmobile manufacturers by two years from the date when other manufacturers would be required to comply. The Panel also recommended that EPA propose that emission standards for small snowmobile manufacturers be phased in over an additional two years (four years to fully implement the standard). We are adopting these recommendations. The two-year delay noted above in the general provisions in section 8.6.1 also applies to the timing of the standards for snowmobiles. In addition, for small snowmobile manufacturers, the emission standards phase in over an additional two years at a rate of 50 percent, then 100 percent. Phase 1 thus phases in at 50/100 percent in 2008/2009, Phase 2 phases in at 50/100 percent in 2012/2013, and Phase 3 phases in at 50/100 percent in 2014/2015.

Unique snowmobile engines. The Panel recommended that EPA seek comment on an additional provision, which would allow a small snowmobile manufacturer to petition EPA for relaxed standards for one or more engine families. The Panel also recommended that EPA allow a provision for EPA to set an alternative standard at a level between the prescribed standard and the baseline level until the engine family is retired or modified in such a way as to increase emission and for the provision to be extended for up to 300 engines per year per manufacturer

would assure it is sufficiently available for those manufacturers for whom the need is greatest. Finally, the Panel recommended that EPA seek comment on initial and deadline dates for the submission of such petitions. We received no comments in this area, but for clarity have decided to require at least nine months lead time by the petitioner.

In response to these recommendations and comments, we are adopting an additional provision to allow a small snowmobile manufacturer to petition us for relaxed standards for one or more engine families. The manufacturer must justify that the engine has unique design characteristics, calibration, or operating characteristics that make it atypical and infeasible or highly impractical to meet the emission-reduction requirements, considering technology, cost, and other factors. At our discretion, we may then set an alternative standard at a level between the prescribed standard and the baseline level, which would likely apply until the family is retired or modified in a way that might alter emissions. These engines will be excluded from averaging calculations. We proposed that this provision be limited to 300 snowmobiles per year. However, we received comment that this limit is too restrictive to be of much assistance to small businesses. Based on this comment we are adopting a limit for this provision of 600 snowmobiles per year.

### **8.6.3 Nonroad industrial engines**

As is the case for nonroad recreational vehicles, some of the provisions not specifically targeted at small entities may ease the burden of compliance for them. For example, comments from equipment manufacturers, including small entities, have made it clear that some nonroad applications involve operation in severe environments that require the use of air-cooled engines, which rely substantially on enrichment to provide additional cooling relative to water-cooled engines. Severe-duty applications include concrete saws and concrete pumps, which are exposed to high levels of concrete dust and highly abrasive particles. At the richer air-fuel ratios, catalysts are able to reduce NO<sub>x</sub> emissions but oxidation of CO emissions is much less effective. As a result, we are adopting less stringent emission standards for these “severe-duty” engines. Manufacturers may request approval in identifying additional severe-duty applications subject to these less stringent standards based on the current use of air-cooled engines or some other engineering arguments showing that air-cooled engines are necessary for these applications. This arrangement generally prevents these higher-emitting engines from gaining a competitive advantage in markets that don’t already use air-cooled engines.

The SBAR Panel recommended that EPA propose several possible provisions to address concerns that the new EPA standards could potentially place small businesses at a competitive disadvantage to larger entities in the industry. Except as noted, we have adopted the specific Panel recommendations listed below.

Using Certification and Emissions Standards from Other EPA Programs. The Panel made several recommendations for this provision. First, the Panel recommended that EPA temporarily expand this arrangement to allow small numbers of constant-speed engines up to 2.5 liters (up to 30kW) to be certified to the Small SI standards. Second, the Panel further recommended that EPA seek comment on the appropriateness of limiting the sales level of 300. Third, the Panel recommended that EPA request comment on the anticipated cap of 30 kW on

the special treatment provisions outlined above, or whether a higher cap on power rating is appropriate. Finally, the Panel recommended that EPA propose to allow small-volume manufacturers producing engines up to 30kW to certify to the small SI standards during the first 3 model years of the program. Thereafter, the standards and test procedures which could apply to other companies at the start of the program would apply to small businesses. We are not adopting this provision and are instead relying on the hardship provisions in the final rule, which will allow us to accomplish the objective of the proposed provision with more flexibility.

Delay of Emission Standards. The Panel recommended that EPA propose to delay the applicability of the long-term standards to small-volume manufacturers for three years beyond the date at which they would generally apply to accommodate the possibility that small companies need to undertake further design work to adequately optimize their designs and to allow them to recover the costs associated with the near-term emission standards. We are also folding this provision into the scope of the hardship provision, but believe it would be appropriate to allow up to four years delay, depending on need.

Production Line Testing. The Panel made several recommendations for this provision. First, the Panel recommended that EPA adopt provisions allowing more flexibility than is available under the California Large SI program or other EPA programs generally to address the concern that production-line testing is another area where small-volume manufacturers typically face a difficult testing burden. Second, the Panel recommended that EPA allow small-volume manufacturers to have a reduced testing rate if they have consistently good test results from testing production-line engines. Finally, the Panel recommended that EPA allow small-volume manufacturers to use alternative low-cost testing options to show that production-line engines meet emission standards.

Deterioration Factors. The Panel recommended that EPA allow small-volume manufacturers to develop a deterioration factor based on available emission measurements and good engineering judgement. We are adopting an approach that gives manufacturers wide discretion to establish deterioration factors for Large SI engines. The general expectation is that manufacturers will rely on emission measurements from engines have operated for an extended period, either in field service or in the laboratory. The manufacturer should do testing as needed to be confident that their engines will meet emission standards under the in-use testing program. However, we intend to rely on manufacturers' technical judgment and related data (instead of results from in-use testing) to appropriately estimate deterioration factors to protect themselves from the risk of noncompliance.

Hardship Provision. The Panel recommended that EPA propose two types of hardship provisions for Large SI engines. First the Panel recommended that EPA allow small businesses to petition EPA for additional lead time (e.g., up to 3 years) to comply with the standards. Second, the Panel recommended that EPA allow small businesses to apply for hardship relief if circumstances outside their control cause the failure to comply (i.e., supply contract broken by parts supplier) and if the failure to sell the subject engines would have a major impact on the company's solvency. We are adopting hardship provisions to address the particular concerns of

small-volume manufacturers, which generally have limited capital and engineering resources. These hardship provisions are generally described in Section 8.6.1. For Large SI engines, we are adopting a longer available extension of the deadline, up to three years, for meeting emission standards for companies that qualify for special treatment under the hardship provisions. We will, however, not extend the deadline for compliance beyond the three-year period. This approach considers the fact that, unlike most other engine categories, qualifying small businesses are more likely to be manufacturers designing their own products. Other types of engines more often involve importers, which are limited more by available engine suppliers than design or development schedules.

#### **8.6.4 Recreational marine diesel engines**

Prior to the proposal, we conducted a Small Business Advocacy Review Panel. The panel process gathers input from small entities potentially affected by the new regulations. To identify small businesses representatives for this process, we used the Small Business Administration definitions for engine manufacturers and boat builders. We then contacted companies manufacturing internal-combustion engines employing fewer than 1,000 people to be small-entity representatives for the Panel. Companies selling or installing such engines in boats and employing fewer than 500 people were also considered small businesses for the Panel. Based on this information, we asked 16 small businesses to serve as small-entity representatives. These companies represented a cross-section of both gasoline and diesel engine marinizers, as well as boat builders. With input from small-entity representatives, the Panel drafted a report with findings and recommendations on how to reduce the potential small-business burden resulting from this rule. The Panel's recommendation's were proposed by EPA and are now being finalized essentially as proposed. Commenters generally supported these provisions. The following sections describe these flexibilities.

##### **8.6.4.1 Engine Dressers**

The manufacturers involved include engine dressers, small-volume engine marinizers, and small-volume boat builders. Many recreational marine diesel engine manufacturers modify new, land-based engines for installation on a marine vessel. Some of the companies that modify engines for installation in boats make no changes that might affect emissions. Their modifications may consist only of adding mounting hardware and a generator or reduction gears for propulsion. They may involve installing a new marine cooling system that meets original manufacturer specifications and duplicates the cooling characteristics of the land-based engine, but with a different cooling medium (i.e., sea water). In many ways, these manufacturers are similar to nonroad equipment manufacturers who purchase certified land-based nonroad engines to make auxiliary engines. This simplified approach of producing an engine can more accurately be described as dressing an engine for a particular application.

To clarify the responsibilities of engine dressers under this rule, we will exempt them from the requirement to certify engines to emission standards, as long as they meet the following seven conditions.

- (1) The engine being dressed (the “base” engine) must be a highway, land-based nonroad, or locomotive engine, certified pursuant to 40 CFR part 86, 40 CFR part 89, or 40 CFR part 92, respectively, or a marine diesel engine certified pursuant to this part.
- (2) The base engine’s emissions, for all pollutants, must meet the otherwise applicable recreational marine emission limits. In other words, starting in 2005, a dressed nonroad Tier 1 engine will not qualify for this exemption, because the more stringent standards for recreational marine diesel engines go into effect at that time.
- (3) The dressing process must not involve any modifications that can change engine emissions. We do not consider changes to the fuel system to be engine dressing, because this equipment is integral to the combustion characteristics of an engine. However, we are expanding the small-volume engine dresser definition to include water-cooled turbochargers where the goal is to match the performance of the non-water-cooled turbocharger on the original certified configuration. We believe this would provide more opportunities for diesel marinizers to be excluded from certification testing if they operate as dressers
- (4) All components added to the engine, including cooling systems, must comply with the specifications provided by the engine manufacturer.
- (5) The original emissions-related label must remain clearly visible on the engine.
- (6) The engine dresser must notify purchasers that the marine engine is a dressed highway, nonroad, or locomotive engine and is exempt from the requirements of 40 CFR part 94.
- (7) The engine dresser must report annually to us the models that are exempt pursuant to this provision and such other information as we deem necessary to ensure appropriate use of the exemption.

Any engine dresser not meeting all these conditions will be considered an engine manufacturer and will accordingly need to certify that new engines comply with this rule’s provisions and label the engine, showing that it is available for use as a marine engine. An engine dresser violating the above criteria might also be liable under anti-tampering provisions for any change made to the land-based engine that affects emissions.

#### **8.6.4.2 Small Diesel Engine Marinizers**

The other small entities can be categorized as sterndrive and inboard engine marinizers, compression-ignition recreational marine engine marinizers, and boat builders that use these engines. We are providing additional flexibilities listed below for small-volume engine marinizers. The purpose of these flexibilities is to reduce the burden on companies who cannot distribute their fixed costs over a large number of engines. For this reason, we are defining a small-volume engine manufacturer based on annual U.S. sales of engines, and are providing the additional flexibilities on this basis, rather than on business size in terms of the number of em-

ployees, revenue, or other such measures. The production count we will use includes all engines (automotive, other nonroad, etc.), not just recreational marine engines. We consider recreational marine diesel engine manufacturers to be small volume for purposes of this provision if they produce fewer than 1,000 internal combustion engines per year. Based on our characterization of the industry, there is a natural break in production volumes just above the 500 engine sales mark. The next smallest manufacturers make tens of thousands of engines. We chose 1,000 engines as a limit because it groups together all the marinizers most needing relief, while still allowing for reasonable sales growth.

Delay Standards for Five Years. The Panel recommended that EPA delay the standards for five years for small businesses. We are concerned about the loss of emission control from part of the fleet during this time, but we recognize the special needs of small-volume marinizers and believe the added time may be necessary for these companies to comply with emission standards. This additional time will allow small-volume marinizers to obtain and implement proven, cost-effective emission-control technology. We are adopting the five-year delay; the standards will take effect from 2011 to 2014 for small-volume marinizers, depending on engine size. Marinizers may apply this five-year delay to all or just a portion of their production. Thus they may still sell engines that meet the standards where possible on some product lines, while delaying the introduction of emission-control technology on other product lines. This option provides more time for small marinizers to redesign their products, allowing time to learn from the technology development of the rest of the industry.

Design-Based Certification The Panel recommended that EPA allow manufacturers to certify by design and to be able to generate credits under this approach. The Panel also recommended that EPA provide adequately detailed design specifications and associated emission levels for several technology options that could be used to certify. Although we proposed this approach, we were unable to specify any technology options for diesel engines that could be used for a design-based certification. We requested comment on such designs and received no comment. Therefore, we are not finalizing a design-based certification option. However, as noted above, we are finalizing the engine dresser provisions and expanding these provisions to include water-cooled turbocharging. This will essentially allow some engines to be exempt from the standards based on design.

Broadly Defined Product Certification Families The Panel recommended that EPA take comment on the need for broadly defined emission families and how these families should be defined. We have established engine criteria for distinguishing between engine families which could result in a number of engine families for a manufacturer depending on the make-up of their product line. We are allowing small-volume marinizers to put all of their models into one engine family (or more as necessary) for certification purposes. Marinizers would then certify using the “worst-case” configuration. This approach is consistent with the option offered to post-manufacture marinizers under the commercial marine regulations. This approach has the advantage of minimizing certification testing, because the marinizer can use a single engine in the first year to certify their whole product line. As with large companies, the small-volume manufacturers could then carry-over certification data from year to year until they change their engine designs in a way that might significantly affect emissions.

Minimize compliance requirements. The Panel suggested we eliminate the compliance burden on small entities to the extent possible. As a result, we proposed to eliminate production-line and deterioration testing requirements for small-volume marinizers. We will assign a deterioration factor for use in calculating end-of-life emission factors for certification. The advantage of this approach is to minimize compliance testing.

Streamlined certification. The Panel recommended that EPA propose to specifically include NTE in a design-based approach. As noted above, we have concerns regarding a design-based approach. However, we will allow small-volume marinizers to certify to the not-to-exceed (NTE) requirements using a streamlined approach. We believe small-volume marinizers can make a satisfactory showing that they meet NTE standards with limited test data. Once these manufacturers test engines over the five-mode certification duty cycle (E5), they can use those or other test points to extrapolate the results to the rest of the NTE zone. For example, an engineering analysis may consider engine timing and fueling rate to determine how much the engine's emissions may change at points not included in the E5 cycle. For this streamlined NTE approach, keeping all four test modes of the E5 cycle within the NTE standards will be enough for small-volume marinizers to certify compliance with NTE requirements, as long as there are no significant changes in timing or fueling rate between modes.

Hardship provisions. The Panel recommended that EPA propose two types of hardship programs for marine engine manufacturers, boat builders and fuel tank manufacturers. First, that EPA should allow small businesses to petition EPA for additional lead time to comply with the standards. Second, that EPA should allow small businesses to apply for hardship relief if circumstances outside their control cause the failure to comply (i.e. supply contract broken by parts supplier) and if the failure to sell the subject fuel tanks or boats would have a major impact on the company's solvency. The Panel also recommended that EPA work with small manufacturers to develop these criteria and how they would be used.

We are adopting two hardship provisions for small-volume marinizers, who may apply for this relief on an annual basis. These are essentially the same provisions noted in section 8.6.1. First, small marinizers may petition us for additional time to comply with the standards. The marinizer must show that it has taken all possible steps to comply but the burden of compliance costs will have a major impact on the company's solvency. Also, if a certified base engine is available, the marinizer must generally use this engine. We believe this provision will protect small-volume marinizers from undue hardship due to certification burden. Also, some emission reduction can be gained if a certified base engine becomes available.

Second, small-volume marinizers may also apply for hardship relief if circumstances outside their control caused the failure to comply (such as a supply contract broken by parts supplier) and if failure to sell the subject engines will have a major impact on the company's solvency. We consider this relief mechanism to be an option of last resort. We believe this provision will protect small-volume marinizers from circumstances outside their control. We, however, intend to not grant hardship relief if contract problems with a specific company prevent compliance for a second time.

Although the panel did not specify a time limit for these hardship provisions, and we are not finalizing any such time limits, we envision these hardship provisions as transitional in nature. We would expect their use to be limited to the early years of the program, in a similar time frame as we are establishing for the recreational vehicle hardship provisions discussed above.

#### **8.6.4.3 Small Recreational Boat Builders**

The SBAR Panel Report also recommended approaches for reducing the burden on small-volume boat builders. The recommendations were based on the concerns that even though boat builders are not required to certify their own engines to the emission standards, they are required to use certified engines, and may need to redesign engine compartments on some boats if engine designs were to change significantly. EPA proposed the flexibilities recommended by the Panel and are finalizing them as proposed.

We are adopting four options for small-volume vessel manufacturers using recreational marine diesel engines. These options are intended to reduce the compliance burden on small companies which are not able to distribute their fixed costs over a large number of vessels. As proposed, we are therefore defining a small-volume boat builder as one that produces fewer than 100 boats for sale in the U.S. in one year and has fewer than 500 employees. The production count includes all engine-powered recreational boats. These options may be used at the manufacturer's discretion. The options for small-volume boat builders are discussed below.

Percent-of-production delay. Manufacturers with a written request from a small-volume boat builder and prior approval from us may produce a limited number of uncertified recreational marine diesel engines. From 2006 through 2010, small-volume boat builders may purchase uncertified engines to sell in boats in an amount equal to 80 percent of engine sales for one year. For example, if the small boat builder sells 100 engines per year, a total of 80 uncertified engines may be sold over the five-year period. This will give small boat builders an option to delay using new engine designs for a portion of business. Engines produced under this flexibility must be labeled accordingly so that customs inspectors know which uncertified engines can be imported. We continue to believe this approach is appropriate and are finalizing it as proposed.

Small-volume allowance. This allowance is similar to the percent-of-production allowance, but is designed for boat builders with very small production volumes. The only difference with the above allowance is that the 80-percent allowance described above may be exceeded, as long as sales do not exceed either 10 engines per year or 20 engines over five years (2006 to 2010). This applies only to engines less than or equal to 2.5 liters per cylinder.

Existing inventory and replacement engine allowance. Small-volume boat builders may sell their existing inventory after the implementation date of the new standards. However, no purposeful stockpiling of uncertified engines is permitted. This provision is intended to allow small boat builders the ability to turn over engine designs.

Hardship relief provision. Small boat builders may apply for hardship relief if circumstances outside their control caused the problem (for example, if a supply contract were broken



by the engine supplier) and if failure to sell the subject vessels will have a major impact on the company's solvency. This relief allows the boat builder to use an uncertified engine and is considered a mechanism of last resort. These hardship provisions are consistent with those currently in place for post-manufacture marinizers of commercial marine diesel engines.

## **8.7 Conclusion**

EPA has conducted a substantial outreach program designed to gather information as to the effect of this final rule on small entities. This process has included two Small Business Advocacy Review Panels, which sought out small entities that would be affected by the rule-making and obtained advice and recommendations from them as to ways in which to minimize the compliance burden placed upon them. We have also published an Advance Notice of Proposed Rulemaking and a Notice of Proposed Rulemaking which requested comments from the affected entities as well as from other interested parties in the public at large. Further, we have reopened the comment period to take comments on the permeation issue raised during the initial comment period, and have included permeation in the analysis of the effects of this rule on small entities. We have met with a number of stakeholders, including state and environmental organizations, engine manufacturers, and equipment manufacturers. From the information we have gathered during this process, as well as information provided by contractor studies, we have found that only 3 small entities are likely to be impacted by more than 3 percent of their sales, and estimate that the degree of impact is likely to be further reduced by the flexibilities that are being finalized in this rulemaking. EPA has thus determined that this final rule will not have a significant economic impact on a substantial number of small entities.