

Chapter 8: Assessment of Potential Impacts on Small Entities

This chapter presents the results of an initial analytic assessment of potential impacts of this proposed regulation on small entities. The results are based on a small business impact analysis conducted by ICF Incorporated under contract with EPA(Ref. 1). The purpose of the analysis was to determine what types of entities, including small entities, were subject to the rule, to determine the potential degree of impact on small entities, and to ultimately determine if a Regulatory Flexibility Analysis should be conducted based on the significance of the impact and the quantity of small entities impacted. The analysis included: 1) identification of potentially affected manufacturers, 2) characterization of affected industries, 3) evaluation of the applicability of the Small Business Administration's (SBA) definition of small to the affected industries, 4) estimation of impacts on small entities, and 5) evaluation of the degree of relief to manufacturers provided by the proposed flexibility provisions. Impacts for a segment of the equipment manufacturing industry affected by the proposal, specifically manufacturers of auger equipment and a number of propane retrofitters, were not included in the ICF analysis because data was unavailable on these manufacturers at the time of the analysis. EPA addresses impacts to these manufacturers in section 8.4 of this chapter. An important point to bear in mind is that the ICF analysis assumes no passthrough of costs in price increases and thus can be characterized as depicting worst case impacts.

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8.1. Requirements of RFA and SBREFA

Section 605 of the Regulatory Flexibility Act (RFA), generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit organizations, and small governmental jurisdictions. Small not-for-profit organizations and small governmental jurisdictions are not expected to be impacted by this proposal, thus EPA's impact analysis focuses on small businesses.

In conducting its analysis, EPA relied on the results of the ICF impact analysis to determine whether or not a Regulatory Flexibility Analysis should be prepared based on the estimated significance of the impacts. In addition, the affected small business entities identified in the analysis were the focus of the outreach activities conducted by EPA to ensure impacts on these companies were adequately assessed and their concerns were appropriately considered during rule development. To evaluate the impacts on small entities, an economic measure known as the "sales test" was used which measures compliance costs as a function of sales revenue. Based on results of the impact analysis, EPA expects the proposed rule will not have a significant economic impact on a substantial number of small entities. The methodology used to conduct the small business impact analysis is presented below, followed by a discussion of the results of the analysis. Outreach activities engaged in by EPA and small business manufacturers are also discussed.

8.2 Methodology of Analysis

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8.2.1 Identification of Manufacturers and Data Collection

As previously discussed in this document, the spark-ignition engines required to comply with the new Phase 2 emission standards can be classified as either handheld or nonhandheld. Manufacturers of such engines may have to modify their engine designs to comply with the new standards.

Manufacturers of equipment utilizing such engines may also be impacted to the extent that they may have to redesign their equipment to accommodate the new engines. Of the five engine classes subject to the Phase 2 emission regulations, this analysis focuses on impacts to manufacturers of Class II nonhandheld (side-valve) engine and equipment, and manufacturers of handheld (Class III, IV, and V) engines and equipment. Manufacturers producing strictly Class I engines or Class II overhead-valve (OHV) engines were excluded from the analysis. As discussed in Chapter 4, Class I side-valve (SV) engines are expected to only need internal modifications for compliance with the new standards, thus impacts to these manufacturers are expected to be minimal.

8.2.1.1 Engine Manufacturers -- Data from several different sources were combined to identify the largest possible universe of affected engine manufacturers. The majority of engine manufacturers were identified from EPA's Phase I Certification (CERT) Database and the Power Systems Research (PSR) database. The CERT database information includes manufacturer name, engine family name, number of equipment models per family, major application, and engine design. Note that some manufacturers were identified because they notified EPA of their intent to certify, yet had not provided additional information. The PSR data typically included production and sales of engines and equipment. Nearly 70 percent of the total of 79 unique engine manufacturers identified was taken from these two sources. The

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remainder of the companies were identified using various sources listed in the ICF report.

After identifying the potentially affected manufacturers, an attempt was made to obtain financial information for most of the companies. Financial information was not sought for companies known to be “large” in size because they were not the focus of the impact analysis. Financial information, specifically number of employees and annual sales revenue, was obtained for 53 of the 79 firms identified. Data sources included Dun&Bradstreet’s (D&B) Market Identifiers On-Line Database, Ward’s Business Directory, and the Small Nonroad Engine and Equipment Industry Study. Information was sought for the ultimate parent³⁵ company of the engine manufacturers identified to ensure that the small business status, based on employee size, would be accurately reflected. Employee size of the ultimate parent company is generally the parameter used by the SBA to define a business as small.

8.2.1.2 Equipment Manufacturers -- Equipment manufacturers using small SI engines were identified using the PSR database. The PSR was considered sufficiently comprehensive for purposes of this analysis, thus other data sources were not used. The PSR database contains one record for each equipment model/engine model combination produced by an equipment manufacturer for a specific application. Data was obtained for a total of 422 manufacturers of nonhandheld equipment using Class II side-valve engines and manufacturers of handheld equipment using Class III, IV, and Class V engines, which were the focus of this analysis. This number does not include manufacturers of equipment that are excluded from the rule (e.g. rail

³⁵Ultimate parent company is considered the uppermost parent or headquarters that encompasses all directly related branches, subsidiaries, or parents of a specific business.

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equipment). D&B Market Identifiers On-Line Database was the primary data source used to collect financial information for the ultimate parent company of the 422 manufacturers. Financial data was collected for 247 ultimate parent companies (representing 282 equipment manufacturers identified³⁶). Data was not readily available for the remaining 140 equipment firms identified through PSR.

8.2.2 Definition of Small Manufacturer

The RFA specifies that the SBA definitions for small business should be used as the initial determination of a small entity, however, EPA may use an alternative definition of small business where appropriate. The SBA defines small business by category of business using Standard Industrial Classification (SIC) codes, and in the case of manufacturing, generally defines small business as a business having 500 employees or less. Exhibit 8-1 shows the range of primary SIC codes listed for the engine and equipment manufacturers identified and the corresponding SBA small business definition, based on number of employees.

³⁶In some instances, more than one of the equipment manufacturers identified were owned by the same ultimate parent company.

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**Table 8-1
Small Business Engine and Equipment Manufacturer Definitions**

SIC Code	Applicable to Engine or Equipment	Title	SBA Definition (Employees)
3519	Engine	Internal Combustion Engines, nec	1000
3523	Equipment	Farm Machinery & Equipment	500
3524	Equipment	Lawn & Garden Equipment	500
3531	Equipment	Construction Machinery	750
3546	Equipment	Power-Driven Handtools	500
3561	Equipment	Pumps and Pumping Equipment	500
3621	Equipment	Motors and Generators	500

8.2.2.1 Small Business Engine Manufacturer -- The primary SIC code of manufacturers of small spark-ignition engines is in most cases SIC code 3519. The SBA defines a small business for SIC code 3519 as one having 1,000 or fewer employees (of the ultimate parent company). Of the 53 engine manufacturers for which financial data was available, 15 ultimate parent companies meet the small business definition of 1,000 employees or less. Exhibit 8-2 shows the financial information collected for these 15 companies.

**Table 8-2
Characteristics of Identified Engine Manufacturers**

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Company	Class	Production Information Available	1994 Sales	Employees
1	I, II	Yes	\$34,700,000	500
2	IV	Yes	\$422,189,908	888
3	IV	Yes	\$314,584,848	630
4	IV	Yes	\$183,006,156	659
5	IV	Yes	\$400,000	20
6	V	Yes	\$57,400,000	500
7	I, II	Yes	\$30,200,000	362
8	II	Yes	\$20,000,000	75
9	II	Yes	\$79,400,000	640
10	II	Yes	\$970,000	10
11	unknown	No	\$8,300,000	85
12	unknown	No	\$700,000	15
13	unknown	No	\$360,000	5
14	unknown	No	\$110,000,000	615
15	unknown	No	\$2,800,000	40

As shown, the 15 small businesses identified range in employee size from 5 to 888 total employees. Sales for those companies range from \$360,000 to \$422 million. Because this rulemaking affects only a small subset of companies within SIC code 3519, and because those companies with primary SIC code of 3519 are typically much larger companies (in terms of sales revenue and employees), an alternative small business definition of 500 employees was considered. The SBA often uses the 500 employee threshold to represent a small manufacturing business. ICF reported that the alternate definition of small business using 500 employees does not greatly change the overall percentage of companies included. Therefore, EPA considered SIC 3519 to be representative of the industry and conservatively used 1,000 as the employee threshold for small business engine manufacturers.

Of the 15 companies identified to qualify as a small business based on employee size, production information was available for 10 of the firms. Production information is important in estimating compliance costs to be incurred by each of the companies, which

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in turn is necessary for determining impacts. Hence, impacts were estimated for the 10 small businesses for which complete data was available. The results of the impact analysis are presented in section 8.4.

8.2.2.2 Small Business Equipment Manufacturer -- As shown in Exhibit 8-1, a 500 employee definition appears to be representative for companies in SIC codes likely to contain equipment manufacturers impacted by this rule.³⁷ This measure was used by ICF to define small business for the analysis.³⁸ Of the 247 companies for which financial data was available, 172 companies (nearly 70%) are considered small business for purposes of this analysis. Information received through outreach and other efforts provided reason (such as the company determined to be out of business) to remove 19 of these firms from the analysis, for an adjusted total of 153 equipment companies considered to be small businesses. As stated previously, EPA identified 140 equipment manufacturers for which data could not be obtained. So as not to leave this large universe of companies out of the analysis, EPA assumed that these 140 manufacturers had the same size distribution as the 247 companies for which data was available. In other words, the distribution of small companies for which financial data was available was applied to the companies for which data was unavailable. As a result, an additional 87 small equipment companies were added to the analysis, for a total of 240 companies.

However, the number of equipment manufacturers qualifying as small business had to be further adjusted to reflect information obtained through

³⁷The SIC codes presented in Exhibit 8-1 represent those industries likely to contain small equipment manufacturers. However, these SIC codes may not completely represent the firms (ultimate parent companies) which are the focus of this analysis because the ultimate parent companies may be primarily involved in other industries.

³⁸The construction machinery industry, represented by a 750 employee threshold, represents a relatively small percentage of engine sales.

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small business contacts. EPA found strong evidence that a majority of firms had already made the switch from using SV engines to using OHV engines. Through company contacts, EPA estimates 63% of the companies are currently making this change or already have done so. EPA regulations were not mentioned as the guiding force behind the shift in engine technology. Rather, companies spoke of the conversion of engine manufacturers producing SV to producing OHV over the last ten years, the CARB standards that have caused the discontinuation of certain SV engines, and the preference of small commercial manufacturers to have premium engines (i.e., OHV) to cater to the premium commercial market. Another 16% of companies are estimated to have left the industry. Thus, EPA estimates approximately 21% of the companies would still need to modify their engines as a result of this regulation. This suggests that the PSR information is outdated, yet no other better source of data could be identified.

To adjust the data to reflect this information, the distribution of companies estimated to be small (240) were multiplied by 21% to produce a more realistic estimate of affected manufacturers. This significantly reduces the number to 50 small business equipment manufacturers (of nonhandheld equipment using Class II SV engines and of handheld equipment using Classes III-V engines) projected to be impacted directly in response to this regulation. Details of the methodology used to produce a realistic estimate of small business equipment manufacturers is provided in the ICF report. Analysis of the severity of cost impacts to these 50 small equipment companies is discussed in below.

8.3 Estimation of Impacts on Small Business Manufacturers

8.3.1 Small Business Engine Manufacturer Impacts

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To estimate impacts on engine manufacturers, specific compliance costs were developed for each engine manufacturer based on the type of engine modification needed and the level of engine production. The individualized annualized compliance costs were then estimated for each small ultimate parent company identified. Finally, a compliance cost to sales ratio was calculated for each small ultimate parent company. A summary of the analysis is provided below. A more detailed impact analysis is available for review in the ICF report.

8.3.1.1 Estimated Costs to Engine Manufacturers -- Based on EPA's knowledge of current and future technology, and discussions with small engine manufacturers, assumptions were made about the types of modifications that may be necessary for each manufacturer to ensure compliance with the proposed Phase 2 emission standards. Cost estimates used in the analysis for technology modifications were taken from ICF's *Cost Study for Phase Two Small Engine Emission Regulations*.³⁹ Compliance costs for each manufacturer were developed by applying the cost estimates shown in Exhibit 8-3 to the compliance strategies anticipated to be pursued by each engine manufacturer based on their current engine technology. These compliance strategy scenarios are presented in Exhibit 8-4.

³⁹*Cost Study for Phase Two Small Engine Emission Regulations*, prepared for U.S. EPA under contract by ICF Incorporated, October, 1996.

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**Table 8-3
Engine Modifications and Associated Costs**

Engine Class	Engine Modification	Fixed Cost (Annualized)	Variable Cost Per Engine	Average Master Die Retirement Costs
I	none necessary for small businesses identified	-	-	-
II	improve SV - spark ignition and timing	\$25,195	-	-
	improve OHV - modified combustion and intake	\$84,850	-	\$59,602
	improve OHV - piston/rings	\$74,500	\$2.25	\$10,518
III, IV, V	improve 2-stroke - scavenging	\$98,900	-	\$80,637
	add catalyst (metallic substrate)	\$108,000	\$8.58	-

Source: U.S. Environmental Protection Agency, *Cost Study for Phase Two Small Engine Emission Regulations*, prepared by ICF/Engine Fuel Emissions, October 1996.

The modification cost is the cost difference to the manufacturer to make the modification as compared to not making the modification. Some of the cost estimates presented here have been revised slightly from those in the cost study to present a more realistic cost to the manufacturer. That is, costs in the cost study were provided for manufacturing the new version of the part. However, the cost to the manufacturer is actually the cost of the new version minus the cost of the existing version (which is an existing cost).

Some engine manufacturers may also have to prematurely retire capital equipment (e.g., master dies) to comply with the emission regulations, even with the phase-in schedule. The average die retirement costs presented in Exhibit 8-3 are estimated for those manufacturers that may decide to retire their equipment earlier than scheduled.

In addition to the engine modification costs mentioned above, the engine

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manufacturers will incur certification costs in complying with the proposal. These costs were estimated based on the type of equipment (handheld versus nonhandheld) and the engine designs (SV versus OHV) as related to requirements in the published Advance Notice of Proposed Rulemaking (ANPRM) for the Phase 2 program. Compliance programs for small businesses were estimated to include certification (handheld and nonhandheld) and in-use testing (handheld only). Production Line Testing (PLT) and Bench/Field correlation programs were waived for both handheld and nonhandheld. Cost estimates for these programs were different for those companies which were expected to contract out testing services versus those that were likely to have test facilities in-house. Assuming that engine companies with annual revenues under \$1 million do not have their own test equipment, estimates for costing include \$2,500 per emission test per engine and \$50 per hour for aging of the engine (based on conversation with two independent test facilities). Costs for paperwork for the in-use test program paperwork requirements are included in the \$50 per hour (based on conversation with an independent test service company). Other small businesses were assumed to have their own test equipment and emission test costs of \$11 for aging and \$300 per emission test were assumed (prices for aging based on a wage of \$5.50 + 100% overhead, price for the emission test was based on confidential data). Note that an engine manufacturer may carry over certification data on an engine family until the engine is altered in a way which requires recertification.

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**Table 8-4
Compliance Strategy Scenarios**

Type Engine Manufacture d	Number of Families	Description of Modifications by Family
Handheld	1	New family line will be designed to meet Phase II, therefore no modifications.
Handheld	1	Family undergoes improved 2-stroke (improved scavenging) and gets catalytic converter - carry through with equipment costs
Handheld	5	All families undergo improved 2-stroke (improved scavenging) One family also needs a catalytic converter (mid size family)
Handheld	8	All families undergo improved 2-stroke (improved scavenging)
Handheld	8	All families undergo improved 2-stroke (improved scavenging)
Nonhandheld	4	All families Class II OHV Two families require improved OHV (improve piston/ring) Two smaller families require no improvement
Nonhandheld	5	3 families Class II SV of which... 2 families no modification 1 family improved SV (spark ignition/timing) (model BKN) 2 families Class I SV (no modification)
Nonhandheld	8	2 families class I OHV (no modification) 6 families class II OHV of which... 3 require slight OHV improvements (modify combustion and intake)
Engine Retrofitter	2	All families (no modification)
Engine Retrofitter	3	All families (no modification)

8.3.1.2 Sales Test for Engine Manufacturers -- Exhibit 8-5 illustrates the annualized fixed/variable, and certification costs assigned to each manufacturer. The certification costs account for the proposed flexibility provision that allows small volume manufacturers to be exempt from certain in-use and production line testing requirements. The ratio of compliance costs to sales revenue was calculated for each small business engine manufacturer to estimate the severity of the impact for each company. As shown, the proposed rule is expected to have minimal impacts on small business engine manufacturers. Only one company identified is expected to incur compliance costs over one percent of their annual revenues. None are expected to incur impacts greater than three percent of annual revenues.

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**Table 8-05
Summary of Annualized Compliance Costs for Engine Manufacturers**

Small Business	Handheld (HH) or Nonhandheld (NHH)	Annualized Compliance Costs (Variable+Fixed)	Certification Costs	1994 Sales Revenue/ Company	% Compliance/ Revenue
1	NHH (alt fuel)	\$0	\$0	\$970,000	0.0%
2	NHH (alt fuel)	\$0	\$0	\$79,400,000	0.0%
3	HH	\$0	\$0	\$550,000	0.0%
4	NHH	\$25,195	\$0	\$30,200,000	0.08%
5	HH	\$1,112,197	\$88,500	\$315,000,000	0.38%
6	HH	\$1,441,036	\$170,800	\$422,000,000	0.38%
7	HH	\$409,643	\$0	\$57,400,000	0.71%
8	HH	\$1,436,296	\$170,800	\$183,000,000	0.88
9	NHH	\$177,329	\$0	\$20,000,000	0.89%
10	NHH	\$434,353	\$145,600	\$34,700,000	1.67%

8.3.2 Small Business Equipment Manufacturer Impacts

The methodology for estimating impacts on small business equipment manufacturers is similar to that described for engine manufacturers. First, compliance costs were developed for each equipment application (e.g., garden tractors, generator sets) listed in the PSR database. Then, individualized annualized compliance costs were estimated for each small ultimate parent company identified. Finally, a compliance cost to sales ratio was calculated for each small parent company.

8.3.2.1 Estimated Costs to Equipment Manufacturers -- Costs to

equipment manufacturers to modify engine designs to accommodate new engines will vary from one control technology to another. The two technologies considered to be the most expensive to implement were the focus of the small business impact analysis. These technology modifications include modifications to equipment to incorporate OHV rather than SV engines, and modifications to accommodate two-stroke engines to which a catalyst has been added.

Equipment modification cost estimates are based on information from EPA telephone contact with small businesses and other sources including the *Cost Study for Phase Two*

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Small Engine Emissions Regulations. Exhibits 8-6 and 8-7 present the cost estimates for each application covered in this analysis for nonhandheld and handheld equipment manufacturers, respectively. Commercial turf equipment include up-front lawn mowers, lawn tractors, and lawn and garden tractors. A more detailed description of how the cost estimates were developed is provided in the ICF report.

**Table 8-06
Cost Estimates for Nonhandheld Equipment Manufacturers**

Application	Fixed Costs (per line)	Variable Costs (per unit)
Walk Behind Lawnmowers	\$0	\$0
Rear Engine Riders	\$50,000	\$0
Commercial Turf		
12 hp	\$1,000	\$0
>12 and 16 hp	\$600,000	\$0
> 16 to 25 hp	\$100,000	\$12
Other Agricultural Equipment	\$100,000	\$0
Leaf Blower/Vacuum	\$50,000	\$0
Snowblowers/Tillers	\$50,000	\$0
Generator Sets	\$100,000	\$0
Pumps	\$50,000	\$0
Roller, Concrete Saw	\$50,000	\$0
Other	\$50,000	\$0

**Table 8-07
Cost Estimates for Handheld Equipment Manufacturers**

Application	Fixed Costs (per line)	Variable Costs (per unit)
Equipment Using Added Catalyst	\$355,000	\$0.90
All Other Equipment	\$0	\$0

Source for fixed and variable costs: U.S. Environmental Protection Agency, *Cost Study for Phase Two Small Engine Emission Regulations*, prepared by ICF/Engine Fuel Emissions, October 1996.

Cost estimates were calculated per equipment model for each

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manufacturer. Each equipment model is assumed to correspond to an application with a specific horsepower rating. To calculate an annualized cost of compliance for each manufacturer, the fixed costs per model were multiplied by the number of equipment models produced by that manufacturer. The fixed costs for all models were then annualized using a nine percent annual cost of capital over a ten year period. The variable cost per unit were multiplied by the number of units produced annually, yielding total annual variable costs. These costs were then added to the annualized fixed costs to calculate the total annualized cost per manufacturer or per ultimate parent, if applicable.

On the handheld equipment side, EPA conservatively assumes manufacturers may choose to incorporate the addition of a catalyst for five percent of their Class III-V engine models . Because of the small number of handheld equipment manufacturers with 500 or fewer employees identified in this analysis (five percent of 15 manufacturers is less than one manufacturer), and because of their low number of models, only one manufacturer was assumed to have to modify its equipment. The manufacturer with the greatest number of handheld equipment lines reported in the PSR database was selected. In fact, however, this manufacturer may not choose to add a catalyst to its engine.

8.3.2.2 Sales Test for Equipment Manufacturers -- Impacts on small business equipment manufacturers were estimated for a base case scenario and a flexibility case scenario. The base case depicts a worst case scenario in which none of the small business equipment manufacturers take advantage of the proposed flexibilities. The flexibility scenario estimates compliance cost impacts under the assumption that small business equipment manufacturers take advantage of the proposed small volume exemption described in Chapter 9 of this document. Note that this impact analysis does not consider the many

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other flexibilities proposed which would likely further reduce impacts from those estimated here. The other proposed flexibilities were not yet developed at the time of the analysis. The impact assessment using the ratio of compliance costs to sales revenue for the 50 small business equipment manufacturers identified (explained in section 8.3.2.2) are presented below for each case.

8.3.2.2.1 Base Case -- Exhibit 8-8 presents the results of estimating impacts on the 50 small business equipment manufacturers using the sales test and without considering any flexibility provisions. Ten firms are estimated to have compliance cost impacts between one and three percent of their sales revenue, while four firms are expected to incur impacts greater than three percent.

**Table 8-08
Compliance Cost as a Percentage of Sales
for Equipment Manufacturers* - Base Case (No Flexibilities)**

	Number of Firms within Impact Ranges			
	< 1 percent	1 - <3 %	3 percent	Total
Corrected Number of Manufacturers Impacted (**)	36	10	4	50

* Includes manufacturers of handheld and Class II SV nonhandheld equipment

** Expanded to Reflect Total Universe of Manufacturers and then Reduced to Reflect Manufacturers that Already Made Conversion from SV to OHV

8.3.2.2.2 Flexibility Case -- The same impact analysis was performed taking into account the benefits of the flexibility provision proposed for small volume models. The provision, modeled for the ICF report, enabled any equipment manufacturer, regardless of size, to produce Phase 1 engines for a single model whose annual production is below 100 each year throughout the duration of Phase 2. EPA has since revised this proposed flexibility by

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increasing the production units to 500 for nonhandheld equipment and 2,500 for handheld equipment. This provides even more flexibility to manufacturers than what was accounted for in the analysis, thus reducing impacts from those estimated here. Exhibit 8-9 shows the results of applying the sales test to small business equipment manufacturers assuming they take advantage of this flexibility.

**Table 8-09
Compliance Cost as a Percentage of Sales
for Equipment Manufacturers* - Small Volume Flexibility Case**

	Number of Firms within Impact Ranges			
	< 1 percent	1 - <3 percent	3 percent	Total
Corrected Number of Manufacturers Impacted (**)	48	2	0	50

* Includes manufacturers of handheld and Class II SV nonhandheld equipment

** Expanded to Reflect Total Universe of Manufacturers and then Reduced to Reflect Manufacturers that Already Made Conversion from SV to OHV

The proposed small volume flexibility provision appears to benefit small equipment manufacturers as anticipated. Results of the analysis show that with this provision, EPA expects impacts to small business equipment manufacturers to be minimal. EPA estimates two companies may be impacted greater than one percent of their sales revenue, but none are expected to be impacted by three percent or greater.⁴⁰

8.3.2.2.3 Effectiveness of Flexibilities -- As stated above,

⁴⁰The analytical assessment conducted by ICF showed additional companies to be impacted above three percent. EPA contacted these companies and determined that all of the impacts were grossly overestimated. None of these companies would incur the compliance costs assigned to them in the analysis. All of the companies reported the current use of OHV rather than SV, and suggested equipment modifications required as a result of this proposal would be negligible.

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consideration of the proposed small volume flexibility in the impact analysis lessened the severity of impacts to small business equipment manufacturers. The provision accounted for the shift of seven companies from over one percent to under one percent. More importantly, no companies are expected to incur impacts above three percent. As stated earlier, the proposal includes additional flexibilities developed since the time of the analysis which could further benefit small business engine and equipment manufacturers.

8.3.3 Conclusions

As illustrated in Exhibits 8-8 and 8-9, the results of the impact analysis suggest impacts to be minimal to small businesses in the affected engine and equipment manufacturing industries. A total of 501 companies (79 engine and 422 equipment) were identified as companies making small spark-ignition engines or equipment. A total of 65 of these companies, or 13 percent, were identified as small companies potentially required to make some modification to their engine/equipment (15 engine and 50 equipment). Of the ten small business engine manufacturers on which this analysis is based, only one company is estimated to incur compliance costs impacts of slightly above one percent of sales revenue. Of the 50 small business equipment manufacturers which were the focus of the analysis, only two companies (4%) are estimated to incur impacts between one and three percent. The sales test ratio is an indication of the severity of the potential impacts. EPA considers levels at which these companies fall (i.e., less than 3 percent) to indicate that impacts of this proposal appear to be “light” on the affected small business entities. Because the impacts are determined to not be significant, and the number of small entities impacted do not appear to be substantial (less than 100), the Agency is providing this initial analytic assessment of potential small business

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impacts in place of preparing a Regulatory Flexibility Analysis. Additionally, in light of these findings, EPA has fulfilled the outreach goals of the Agency, explained in section 8.5 below.

The impacts reported here can be considered conservative estimates for several reasons. First, cost passthroughs to consumers were not considered. The analysis assumes that the manufacturer will bear 100 percent of the costs, which is an unrealistic assumption. Many small business equipment manufacturers conveyed to EPA the likelihood they would pass most, if not all, additional costs on to consumers. Many of the small business equipment manufacturers appear to cater to niche markets, which provides a better opportunity for partial or even full cost passthrough. Second, the full range of flexibilities being proposed were not considered in the analysis. Inclusion of additional flexibilities, which will benefit both small engine and equipment businesses, will further reduce impacts. Third, while the PSR database is the best known source of data available on equipment companies, it appears to contain outdated information. EPA's contacts with some of the affected companies led to the adjustment of the data to reflect a more realistic picture of the current technology used by equipment companies. Impacts are overestimated to the extent that EPA's estimate of companies still needing to convert from SV to OHV technology is overestimated. Fourth, while the ratio of compliance costs to sales is a good indicator of the severity of potential impacts, it does not indicate the current financial health of the company. It is possible that the companies estimated to be most severely impacted were in a state of poor financial health prior to analysis of compliance cost impacts. The data required for conducting an analysis showing financial health of a company before and after compliance cost impacts could not be obtained for the identified small companies. Fifth, impacts will likely be less than estimated

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here given that the analysis was based on conservative compliance cost estimates. Sixth, the impacts are overestimated to the extent that manufacturers will be making modifications in response to an upcoming rulemaking by the California Air Resources Board which will affect the same category of engines.

8.3.4 Limitations of the Analysis

During development of today's proposed rule, EPA became aware of two segments of the industry that had not been sufficiently analyzed for impacts. These segments include the manufacturers of ice and earth augers and the manufacturers of engines with propane retrofits. The timing of the ICF analysis was such that these segments could not be included in the impact assessment. Therefore, EPA has attempted to address impacts to these manufacturers, as explained below.

Characterization of the affected industries by ICF has led the Agency to understand that handheld equipment manufacturers generally produce both the engines and the equipment. However, manufacturers of earth and ice auger handheld equipment appear to be one exception. These manufacturers are reliant upon the engines being produced in the marketplace. Assuming there is a suitable Phase 2 engine available by the engine manufacturers for purchase (this analysis assumes there will be one available), these equipment manufacturers will need lead time and capital to make design changes and test the engines prior to entering the marketplace. The design changes include changes in gear design in the transmission box as well as throttle sensitivity adjustments that may be required due to a new engine. This cost was estimated at \$60,000 and is an estimate from conversations with auger manufacturers. The sales test was performed on each manufacturer using

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confidential sales and annual revenue estimates from letters submitted during the Phase I rulemaking from these equipment manufacturers. All five equipment manufacturers were found to have an impact less than 3% with four of the five well below 3%. If the auger manufacturers do not have a Phase 2 engine prior to the end of the allowable phase-in period, this rulemaking contains a flexibility which will allow them to have an additional three years to make design changes to incorporate the new engine.

The ICF analysis contains information on the impacts on a few equipment companies that retrofit gasoline engines for use on propane in indoor applications. The companies analyzed by ICF have already certified to Phase I standards and their emission levels are already below the Phase 2 standards, likely due to the use of a closed loop catalyst system developed within the companies. The propane retrofitters utilize this system in order to meet indoor safety standards (for CO) and EPA Phase I standards (for HC+NO_x). However, as noted in the report, there are a number of propane retrofit companies for which financial and/or production information was not available. Conversation with one propane retrofitter company that was not included in the ICF analysis revealed that they did not know what their base emission levels were to date and that testing was planned at an independent test laboratory. This company was aware of an off the shelf catalyst for use if necessary in order to meet Phase I standards. This company stated that it had three employees and did not have the R&D capability necessary to develop a complex three way catalyst system and may close its doors if it needed to use such a system to meet the Phase 2 requirements. To attempt to alleviate some burden on companies such as this, EPA is proposing that small equipment models, 500 units per nonhandheld and 2000 per handheld model, may utilize Phase I engines throughout the Phase 2 rulemaking. EPA requests comment on

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the effectiveness of this and other flexibilities included in today's proposed rule. The Agency was not able to assess impacts on many propane retrofitters since data was unavailable. However, EPA believes impacts on the small equipment companies that manufacture and utilize propane retrofit engines to be minimal due to the flexibilities available to these manufacturers.

8.4 Small Entity Outreach

Even when an action will not have a significant impact on a substantial number of small entities, which EPA has determined to be the case for this proposed regulation, it is important that the Agency engage in consultation with the relevant small entity community. As such, during the development of this proposal, EPA has been in contact with representatives of industries containing small businesses that will be subject to this proposed rule. The International Sanitary Supply Association (ISSA) and the Outdoor Power Equipment Institute (OPEI) are examples of organizations that EPA has maintained dialogue with throughout the process. Additionally, small businesses were encouraged to comment in response to the ANPRM, and a few chose to do so. ICF and EPA also contacted some small business equipment manufacturers for insight into current technology, cost impacts, and other related issues which would be useful in making a realistic estimate of impacts on small entities.

General observations made by the Agency as a result of contacts with these companies include: 1) many engine companies have already converted to producing only OHV engines and/or have limited the number of SV engines that are offered, either due to Phase 1 regulations or based on the merits associated with such technology, 2) many equipment manufacturers have made

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the switch to the new OHV engines or plan to do so in the near term (mainly due to market competition) and, if necessary, have already incurred any necessary costs to accept OHV engines into their equipment designs, 3) where additional changes to equipment will be necessary to allow the future installation of OHV engines, these equipment changes would often be minimal, and any resulting costs can be spread over the pieces of equipment produced during the life cycle of the product designs, 4) the lead time between now and the Phase 2 rule's effective dates (beginning 2001) would help minimize costs by allowing any necessary equipment changes to be phased in, perhaps even incorporated into normal product redesign cycles, 5) since the small spark-ignition engine emission regulations apply to all manufacturers of such engines, all equipment manufacturers marketing competitive products (e.g., currently utilizing SV engines) would be similarly impacted and therefore would have similar opportunities to pass any necessary cost increases along to customers. While EPA has received some comment suggesting that large, mass merchandisers particularly resist price increases, engine and equipment manufacturers currently competing for sales to these mass merchandisers would be similarly impacted by this planned Phase 2 rule and would be equally positioned to pass along increases in their cost.

The Agency continues to be interested in the potential impacts of the proposed rule on small entities and welcomes additional comments during the rulemaking process. In spite of the expected minimal impacts on small entities, the Agency is further enhancing its outreach efforts by notifying other small business equipment manufacturers of this rule and informing them of their opportunities for providing comment to the Agency.

Chapter 8: References

1. "Small Business Impact Analysis of New Emission Standards for Small Spark-Ignition Nonroad Engines and Equipment," prepared for EPA by ICF Incorporated under EPA Contract 68-C5-0010, August 1998, available in Docket A-96-55.