

Request For Information: Techniques to Substantially Reduce Carbon Monoxide Emissions from Gasoline Powered Portable Generators

Division of Procurement Services, U.S. Consumer Product Safety Commission (CPSC), 4330 East-West Hwy, Bethesda, MD 20814

Description

THIS DOCUMENT IS A REQUEST FOR INFORMATION (RFI) ONLY. THE GOVERNMENT DESIRES TO ASCERTAIN INTEREST IN AND CAPABILITY OF VERY SUBSTANTIALLY REDUCING CARBON MONOXIDE (CO) EMISSIONS FROM PORTABLE GENERATORS AND TO OBTAIN INPUT ON THE TECHNICAL REQUIREMENTS FOR POTENTIAL REFINEMENT PRIOR TO ISSUING ANY FORMAL SOLICITATION.

THE GOVERNMENT DOES NOT INTEND TO AWARD A CONTRACT ON THE BASIS OF THIS RFI OR TO OTHERWISE PAY FOR THE INFORMATION RECEIVED.

BASED ON THE RESULTS OF THIS RFI, IF FUNDING IS AVAILABLE AND A STUDY IS DEEMED REASONABLE, THE GOVERNMENT MAY SUBMIT A FOLLOW-ON ANNOUNCEMENT IN FEDBIZOPPS REQUESTING FORMAL PROPOSALS.

WHEN RESPONDING TO THIS RFI, PLEASE CLEARLY LABEL ALL PROPRIETARY INFORMATION AND ANY OTHER LIMITATIONS ON DISCLOSURE.

DO NOT PREPARE OR SUBMIT PROPOSALS IN RESPONSE TO THIS RFI. THE PURPOSE OF THIS RFI IS TO RECEIVE INPUT FROM TECHNICAL EXPERTS AND OTHER PARTIES ON THE FOLLOWING TECHNICAL REQUIREMENTS. TECHNICAL QUESTIONS AND SUGGESTIONS SHOULD BE ADDRESSED TO THE TECHNICAL POINT OF CONTACT LISTED BELOW. SPECIFIC QUESTIONS ARE LISTED AT THE END OF THE DOCUMENT. RESPONSES TO THIS RFI ARE DUE BY APRIL 28, 2006. SEND RESPONSES TO MRS. KIM MILES, 4330 EAST WEST HWY, BETHESDA, MARYLAND 20814 OR EMAIL AT KMILES@CPSC.GOV .

CONTACTS :

Technical questions, comments, or suggestions should be directed to Mr. Donald Switzer, DSwitzer@cpsc.gov.

Contracting questions should be directed to: Mrs. Kim Miles, Kmiles@cpsc.gov

RFI TECHNICAL INFORMATION: Substantially Reducing CO emissions from portable engine-powered generators

A. INTRODUCTION:

The CPSC is concerned about the hazard of acute residential CO exposures from portable gasoline engine-powered generators that can result in death or in serious and/or lasting adverse health effects in exposed individuals.

Since 1999, the percentage of estimated CO poisoning deaths associated with generators has been increasing annually. In 1999, generators were associated with 6% of the total yearly estimated CO poisoning deaths. In 2000, 2001, and 2002, the percentages were 14%, 17%, and 24%, respectively. Typically, these deaths occur when consumers use a generator in an enclosed space or outdoors near an open door, window or vent. The output of the majority of light duty generators sold in 2002 was in the 5.1 kW to 6.0 kW range

The CPSC staff is considering various means to limit consumer exposure to the CO produced by portable generators. One of the strategies being considered is to very substantially limit the tailpipe emission of CO.

B. REQUEST:

The CPSC staff is interested in obtaining ideas, data, concepts, etc. that may lead to practical approaches to substantially reduce the tailpipe CO emissions from portable gasoline engine-powered generators to levels that could reduce the number of CO poisoning deaths and injuries. CPSC staff realizes that, while the ideal goal of eliminating the CO poisoning hazard is most likely not feasible, a goal of increasing survivability may be achievable and should be investigated.

Potential solutions would reduce CO emissions from Class I and/or Class II non-handheld engines within the small spark-ignited engine category to the lowest possible level without negatively affecting engine performance and engine life. The modified engines would still be required to meet the anticipated EPA Phase III emission requirements. At the same time, any increase in the fire and burn risk associated with increased temperatures on the exterior of the exhaust system and adjacent engine and generator components must be minimized. Incremental cost increases associated with the CO emission-abatement equipment must be small enough to be consistent with product marketability.

Based on previous research sponsored by the California Air Resources Board and reviewed by CPSC staff, exhaust catalyst after-treatment, improvements to the engine and/or alternative fuel systems designs may potentially offer realistic solutions. However, the Government is willing to consider other approaches. CPSC staff has set a tentative target of reducing current emissions by 90% using existing emission-abatement technologies that can be reapplied to small engines. Staff acknowledges this is a very aggressive target, and will consider information on technologies that result in somewhat smaller reductions. Similarly, staff is interested in information that would indicate even further reductions in CO emissions are feasible, to the point of a zero CO-emission system.

We request that responders provide documentation of the technical feasibility of substantially reducing tailpipe emissions in the form of test results (published or clearly marked as proprietary), design options (currently marketed, or proprietary), research (public or proprietary), hardware prototypes with detailed data supporting performance claims, or studies or literature reviews documenting the likely success or failure of achieving a 90% reduction in emissions.

Parameters we will use in determining technical feasibility will be: 1) amount of CO emissions reduction; 2) effect on engine performance; 3) compatibility with existing engine design; 4) compatibility with anticipated EPA Phase III emission requirements; 5) increased fire/burn risk; and 6) cost.

Responses should be in the form of reports or letters discussing the likely success of achieving the target emissions reductions while meeting the design parameters listed above. Particular emphasis will be placed on empirical emissions reduction test data. All conclusions should be supported by such data, preferably in the form of emissions test measurements. If emissions test results are provided, the test method and data analysis method must be provided in sufficient detail to allow independent analysis of the results. If the responder provides a compilation of published test results from other sources, the results should be summarized in a form that allows direct comparison of results.

Responders should address the following questions in their submissions:

1. What is the minimum CO emissions rate (g/kW-hr.) achievable using currently available technologies without significantly degrading engine performance or life?
2. What effect if any would the technologies have on engine performance and life?
3. What is the minimum CO emissions rate (g/kW-hr.) achievable without significantly increasing the risk of fire or consumer burn injuries?
4. What would be the size and nature of the effect on the temperature of the engine components, exhaust, and exhaust system exterior?
5. How would existing engines need to be modified to accept the proposed technologies?

6. How much would successful emissions controls add to the cost of current portable generator designs?
7. What factors or circumstances could reduce these costs?
8. What are the tradeoffs between CO emissions reduction, complexity of the emissions control technology, added risk of fire or burn injuries, effect on engine performance and life, and cost?
9. How long would it take to bring adequate emissions control technology to the market?
10. Would CO emissions abatement affect the maintenance or service requirements of the generators or their power supply?
11. What effects would the proposed technology have on the overall size and portability of the product?
12. Does the proposed technology require power to operate?

Responses to this Request For Information (RFI) are to be submitted directly to the Contracting Office address indicated above, Attn: Kim Miles no later than April 28, 2006.