



June 20, 2023

Office of the Secretary
Consumer Product Safety Commission
4330 East-West Highway
Bethesda, MD 20814

Submitted via *www.regulations.gov*

**Comments of Consumer Reports to the
Consumer Product Safety Commission on the
Supplemental Notice of Proposed Rulemaking:
“Safety Standard for Portable Generators”
Docket No. CPSC-2006-0057**

Consumer Reports (CR), the independent, nonprofit member organization,¹ welcomes the opportunity to submit comments to the Consumer Product Safety Commission (CPSC) regarding the agency’s supplemental notice of proposed rulemaking to establish a mandatory safety standard for portable generators.² CR strongly supports the CPSC’s proposed safety standard and urges the Commission to finalize it expeditiously.

I. Portable Generators Can Help Consumers in a Power Outage, but Also Hurt Them—So Consumer Reports Tests and Rates Portable Generators for Safety

Improving the safety of portable generators—in particular, to reduce the risk of carbon monoxide (CO) poisoning—has been a longtime priority for CR.³ For decades, we have educated

¹ Founded in 1936, Consumer Reports (CR) is an independent, nonprofit, and nonpartisan organization that works with consumers to create a fair and just marketplace. Known for its rigorous testing and ratings of products, CR advocates for laws and company practices that put consumers first. CR is dedicated to amplifying the voices of consumers to promote safety, digital rights, financial fairness, and sustainability. The organization surveys millions of Americans every year, reports extensively on the challenges and opportunities for today’s consumers, and provides ad-free content and tools to 6 million members across the U.S.

² CPSC, Safety Standard for Portable Generators, 88 Fed. Reg. 24346 (Apr. 20, 2023) (supplemental notice of proposed rulemaking; notice of opportunity for oral presentation of comments) (online at: www.federalregister.gov/documents/2023/04/20/2023-07870/safety-standard-for-portable-generators).

³ CR, “Safety Feature on Portable Generators Could Save Lives, Consumer Reports’ Tests Show” (last updated Aug. 9, 2021) (online at: www.consumerreports.org/portable-generators/new-safety-feature-on-portable-generators-could-save-lives-consumer-reports-tests-show).

consumers about the utility of these products, as well as their safety risks,^{4 5} and advocated for stronger standards. We recommend to consumers that they should never use a portable generator in an enclosed space; always run a portable generator at least 20 feet from their home and equipment such as a central air conditioner condenser or a window A/C; and direct the exhaust away from their home or any other structure, including any neighbor’s home.⁶ We test and rate portable generators, evaluating models on both safety and performance, to give consumers the knowledge they need to make informed decisions on purchases.

Portable generators’ engines can emit carbon monoxide at an extremely high rate. According to the CPSC’s supplemental notice of proposed rulemaking, the CO emission rates of portable generators “are on the order of hundreds of times the CO emission rates of gasoline powered automobiles.”⁷ Portable generator users might not be aware of the potentially deadly hazard posed by the gas, which is colorless, odorless, and tasteless, nor the sheer quantity of carbon monoxide produced by these tools.

As a part of the present proposal, CPSC staff estimates that an average of about 74 people were killed annually by carbon monoxide emitted from portable generators in the 2004-2021 period, with thousands of non-fatal poisonings also occurring every year. In the portable generator marketplace, there are two voluntary standards: UL 2201 and PGMA G300, both of which adopted CO poisoning hazard-mitigation requirements in 2018, following the release of the CPSC’s 2016 notice of proposed rulemaking. These standards represented a step forward, and they have helped drive improvements in portable generator CO safety technology. However, deaths and injuries linked to portable generators have not substantially decreased over the 18 years of incidents studied by the CPSC. Indeed, reported fatalities have increased in recent years. Between 2017 and 2019, the three most recent years for which complete data are available, generator-related CO deaths have averaged 85 per year, an almost 15 percent increase in deaths compared to years prior.⁸ Concerningly, while data collection is ongoing, CPSC staff has stated that the number of CO deaths caused by portable generators in 2020 is likely to exceed the highest number of annual deaths reported in any year prior.⁹

Consumers rely on portable generators to keep their homes powered and their families safe during emergency power outages—stressful and sometimes desperate circumstances in

⁴ Separate from concerns related to portable generator-related carbon monoxide poisoning, CR has long recommended that consumers use a transfer switch or interlock device when connecting a portable generator to their home’s electrical system if they are seeking to use the generator to power their whole house. *See, e.g.*, CR, “Why a Portable Generator Needs a Transfer Switch to Safely Power Your Whole House” (last updated Jan. 31, 2022) (online at: www.consumerreports.org/portable-generators/portable-generator-needs-a-transfer-switch-a1069571021).

⁵ CR also recommends shielding a portable generator from rain with a canopy designed for the particular model. *See, e.g.*, CR, “Generator Buying Guide” (last updated Jan. 10, 2023) (online at: www.consumerreports.org/home-garden/generators/buying-guide).

⁶ *Id.*

⁷ *Supra* note 2 at 24347.

⁸ *Id.*

⁹ CPSC staff briefing memorandum, Supplemental Notice of Proposed Rulemaking (SNPR): Safety Standard for Portable Generators (Mar. 8, 2023) (online at: www.cpsc.gov/s3fs-public/SupplementalNoticeofProposedRulemakingSNPRSafetyStandardforPortableGenerators.pdf).

which they do not always follow safety guidelines. CPSC staff found that the vast majority of documented fatalities linked to CO poisoning from portable generators occurred at times of the year most associated with winter storms, severe thunderstorms, and tropical storms. Other research indicates that power outages are increasing in frequency and duration as the climate warms.¹⁰ As deaths and injuries remain high and potentially are trending in the wrong direction, the implementation of a strong, mandatory safety rule for portable generators is vitally important.

Consumer Reports tests and rates portable generator models on both safety and performance.¹¹ When CR started conducting safety testing of portable generators, we evaluated safety on the basis of whether or not a generator had an automatic carbon monoxide shutoff that actually stopped the engine before CO built up to specified levels in a fully enclosed space. In 2019, CR updated our safety evaluation to better differentiate the level of safety protection among models. Our scoring now also accounts for the results of a second test, designed to capture what happens when a generator is used in a space that is partially enclosed—like an attached garage with the garage door open.

Today, CR’s portable generator ratings award points to models that feature a carbon monoxide safety system—meaning a low-CO engine, an automatic shutoff, or both—and our scoring penalizes those models that do not have such a system. In fact, we now only recommend portable generators to consumers if they have a carbon monoxide safety system. Ideally, portable generators should have both lower emissions and a detection-and-shutoff feature: As CR has noted, there are potentially life-threatening gaps that an automatic detection-and-shutoff feature, alone, fails to address. CR’s scoring system reflects this reality.

In addition to our rigorous safety tests, CR also tests for performance to assess if a generator will work as advertised under foreseeable consumer use and handle the load it promises. To evaluate performance, CR’s engineers connect every tested generator to a variety of essentials consumers may need to power during an outage, including a space heater, a refrigerator, and a window air conditioner. We evaluate how a generator performs under a sudden spike in voltage, a scenario that would occur if the compressor in a refrigerator activated when the generator was already close to capacity. We also evaluate how easy it is to operate a generator, how efficiently it uses gasoline, and how long it runs on a single tank.¹²

Consumer Reports’ evaluations and recommendations provide consumers with helpful information about portable generators that they can use to keep themselves and their loved ones safe. We consider our work essential in empowering consumers and helping move the portable generator market toward safer products. It is no substitute, however, for sensible rules that would

¹⁰ Associated Press, “Extreme weather causes more power outages in U.S.” (Apr. 5, 2022) (online at: www.apnews.com/article/ap-videos-910909001803); Washington Post, “Power outages hit some communities harder and more often, study says” (May 14, 2023) (online at www.washingtonpost.com/science/2023/05/14/storms-climate-power-outage-effects); TIME, “The U.S.’s Creaky Power Grid Is No Match For Worsening Weather Catastrophes” (Nov. 18, 2022) (online at: www.time.com/6235156/extreme-weather-us-power-outages).

¹¹ CR, “How Consumer Reports Tests Generators for Safety” (last updated Aug. 14, 2020) (online at: www.consumerreports.org/portable-generators/how-consumer-reports-tests-generators-for-safety).

¹² CR, “Best Portable Generators of 2023” (last updated Jan. 1, 2023) (online at: www.consumerreports.org/portable-generators/best-portable-generators-of-the-year-a6834235201).

apply across the market and ensure that anyone buying a new portable generator receives an adequate level of protection against carbon monoxide poisoning and other safety hazards.

II. A Mandatory Safety Standard for Portable Generators Is Urgently Needed

The justification for the proposed safety standard is clear: deaths and injuries linked to CO poisoning have not meaningfully declined despite decades of public awareness efforts, a strong CPSC warning label, and the revised voluntary standards published in 2018. Both deaths and injuries remain high and potentially are trending higher. While the CPSC has determined that high levels of compliance with the voluntary standards would greatly reduce deaths associated with consumers' use of portable generators, the agency also has found that the existing voluntary standards are not adequate to address the CO hazard and are not likely to eliminate or adequately address the risk of injury. In addition, the CPSC has determined that industrywide manufacturer compliance with either voluntary standard is limited and that substantial compliance with either standard is unlikely in the future.

Consumer Reports agrees with both conclusions. Shortcomings in PGMA G300 and UL 2201, and the lack of compliance with one of these standards across the marketplace, make evident the need for a strong mandatory standard. We are glad to see a proposed rule that incorporates the strongest elements of UL 2201 and PGMA G300, as CR has previously advocated, and includes modifications to the voluntary standards where necessary to address safety gaps. CR strongly supports the CPSC's proposed rule as the best way to substantially reduce deaths and injuries, and urges the agency to finalize it expeditiously. In the following sections, we outline key elements of the CPSC's proposed rule and how they will help protect consumers' safety.

III. The CPSC's Proposal Would Take an Integrated Approach to Limiting CO Emissions, Sensing CO, and Shutoff, and Set a Strong Foundation for Safety

The CPSC correctly proposes to address the carbon monoxide hazard associated with spark-ignited portable generators through both reduced CO emissions and effective CO sensing and shutoff of the unit. This integrated proposal takes the best of both approaches currently seen in the marketplace and weaves them together in an intelligent and justified manner.

Carbon monoxide emission limits combined with shutoff criteria

The UL 2201 limits for weighted CO emission rate of a maximum of 150 g/h, and shutoff concentrations of a maximum of 400 parts per million by volume (ppmv) of CO instantaneously or 150 ppmv of CO for a 10-minute rolling average, are appropriate for inclusion into the CPSC's proposed mandatory safety standard. The CPSC has found that requirements for limiting CO emissions are critical to consumer safety, as an effective detection-and-shutoff system alone—while helpful to prevent CO poisoning death in a number of scenarios—is not adequate to protect consumers from death and serious injury from accumulated CO. After reviewing the results of simulations performed by the National Institute for Standards and Technology (NIST) that replicated the scenarios of 511 deaths in CPSC databases, CPSC staff has assessed that the CO emission rate and shutoff requirements of the UL standard would have prevented virtually all

of the deaths, and the survivors would have sustained relatively few injuries. Due to the markedly high CO emission rates of portable generators and the risks to consumers of scenarios that cannot be adequately addressed through a detection-and-shutoff-only approach, it is vital for the proposed rule to have effective emissions limits.

CR supports such limits in portable generator standards, and we are glad to see that the proposed rule incorporates these UL 2201 requirements. The CPSC states that its analyses demonstrate that UL 2201's weighted CO emission rate limits are "extremely effective in the simulated conditions, where the system, including shutoffs, operates as designed," but stipulates that to ensure the "simulated performance requirements are effective in real-world scenarios ... the CO shutoff system must be reliable, functional, and durable."¹³ We agree with this assessment on the basis of the data presented, and support the CPSC's plans to include additional requirements in its rule to ensure that a unit functions as intended under foreseeable use and in various environmental conditions to protect consumers from CO poisoning. In particular, it is appropriate that all units be equipped with a simple, one-step shutdown function that requires a single action and overrides all run commands, and we support the CPSC's proposal to adopt this requirement from PGMA G300. See section IV for our additional comments on durability, reliability, and self-monitoring matters.

Construction requirements and criteria for shutoff system

For the purpose of determining activation to the CO shutoff requirements, we support the CPSC's decision to base its requirements on section 3.9.1 of PGMA G300, with changes to the stated CO concentrations in order to align with those that must be achieved under UL 2201. We agree that the PGMA G300 concentration limits are inadequate to protect the public from the risk of CO poisoning, and it is critical to incorporate the UL 2201 limits into the CPSC's proposed standard. We likewise agree that UL 2201 alone is inadequate to address the CO shutoff system because it does not prescribe requirements for the construction of the system.

Test room setup and requirements regarding air inlet/outlet

We agree with the CPSC's assessment that it is unnecessary for a test room's volume to be constrained to those volumes identified in PGMA G300 or UL 2201, and that additional flexibility is appropriate, within reason, to permit compliance testing in all current test rooms used for testing to the requirements of either voluntary standard. The proposed rule appropriately expands the range of volumes to 895–2,100 ft³ to encompass the requirements of both standards.

Going beyond the requirements of PGMA G300, the proposed rule specifies the location and dimensions of the air inlet and outlet in the test room. We agree that this additional requirement is reasonable and necessary to promote a baseline of consistency for airflow in the room. Under the CPSC's proposal, the configuration of the air inlet and outlet for ventilation must be designed so that "neither port creates a flow directly onto or near the CO analyzer sample port above the generator or the CO sensor onboard the generator that is used as part of

¹³ *Supra* note 2 at 24353.

the CO safety shutoff system.”¹⁴ The proposed rule also rightly specifies how ventilation must be induced, requiring that a fan be present on the air outlet to ensure that the ventilation system will not create positive pressure in the test room, a condition that could pose a safety risk to test operators and potentially result in leakage from the test room.

Generator position within the room

In order to accommodate different test room dimensions, the CPSC assesses that it is necessary to provide constraints on the position of a generator in the room. We agree. The prescribed position constraints are necessary to ensure a minimum degree of consistency for the airflow around the CO analyzer sampling port and the CO sensor onboard the generator, and to address the diffusion of exhaust within the room to prevent the accumulation of harmful gases. The proposed placement—which requires the generator to be positioned so that the exhaust jet centerline is along one of the test room centerlines, the exhaust outlet is at least six feet from the opposite wall, and the outer surfaces of the generator housing or frame are at least three feet from the walls on all other sides—is reasonable and would likely help prevent heat buildup near the unit. It is also reasonable to require that the onboard CO sensor be at least one foot away from any obstruction to allow for proper functioning of the safety mechanism and ensure that CO levels are accurately detected.

Carbon monoxide measurement location

PGMA G300 includes that a portable generator’s air sample port, which is used in conjunction with the CO analyzer to measure the concentration of CO above the generator, should be positioned one to two inches above the approximate center of the generator’s top surface. The CPSC notes that the location of the CO measurement port is crucial for accurate CO monitoring and considers the prescribed PGMA location to be too close to the portable generator, and thus the CO sample may be affected by low flow and mixing conditions present near the units’ surfaces. To address this issue, the CPSC has proposed increasing the height of the CO sample port to be one foot above the center point of the top of the generator. CR’s experience testing portable generators shows that CO concentrations can be markedly higher at a location above the generator than at a location near the unit. Therefore, we find this requirement reasonable to obtain more reliable and representative readings of CO levels, and we support the proposed modification.

IV. Durability, Reliability, and Safe Operation Requirements Are Critical

Maintaining functionality of the CO shutoff system

As discussed, while the CO emission rate requirements and CO shutoff levels prescribed by UL 2201 are protective and we support them, this standard alone would be inadequate to reduce the risk of injury on its own, without modification, because it does not contain sufficient requirements for the construction of the CO shutoff system. Additional requirements are important to ensure durability, reliability, and safe operation of this system. If a CO shutoff system becomes damaged, is bypassed, or is overridden in such a way that the generator could

¹⁴ *Id.* at 24354.

operate without the shutoff system functioning properly, the effectiveness of the proposed rule's primary requirements would be severely curtailed. Therefore, we agree with the CPSC's decision to incorporate into its proposed rule PGMA G300's CO shutoff test method and requirements specifying aspects of the shutoff system's construction, ability to self-monitor, and tamper resistance criteria, as well as the CPSC modifications, which ensure the efficacy of the requirements. The requirements of UL 2034, *Single and Multiple Station Carbon Monoxide Alarms*, included in Section 3.9.1 and 3.9.1.4 of PGMA G300, have proven effective in CO detectors, and products that meet the UL 2034 requirements have demonstrated reliable operation for numerous years. The included performance requirements rightfully account for gas and vapor interference, dust exposure, vibration, corrosion, and extreme temperature and humidity exposure, all of which are environmental conditions that portable generators can be reasonably expected to be subjected to and under which their CO shutoff system still must be able to function properly.

Tamper resistance

Portable generators' CO safety systems must be made sufficiently tamper resistant under foreseeable use. PGMA G300's criteria for tamper resistance provides a good foundation for safety while permitting flexibility in design. The PGMA standard stipulates that an engine must be prevented from running when any component is "shorted, disconnected or removed," but manufacturers have some discretion in the design of the tamper-resistant system.¹⁵ While all parts must be reasonably inaccessible, this can be accomplished by either permanently sealing all applicable parts or making it so that they are not normally accessible by hand or with ordinary tools. (Please note that we do not include the CO sensor battery compartment in this recommendation; see our specific comments in the "Self-monitoring" section about this subject.) We support the CPSC's decision to incorporate this element of the PGMA standard into the proposed rule. Building off these requirements, the proposed rule correctly requires that the construction of a generator must minimize the risk of intentional blockage of the system for controlling CO exposure and minimize the risk of incidental damage to that system. It is also critical that the system for controlling CO exposure not incorporate any type of override function or feature, and we are glad the proposal prohibits the inclusion of such a feature.

Self-monitoring

Adequate self-monitoring criteria are needed to ensure that when a portable generator fails to function properly, it shuts down. In the event that there is a loss of power, the system has a fault, or it reaches end-of-life and the generator operates without the shutoff system functioning, the effectiveness of the performance requirements would be reduced. While UL 2201 does not include a self-monitoring requirement, PGMA G300 does. Section 3.9.1.1 of the PGMA standard, which has been incorporated into the proposed rule, includes requirements for a self monitoring system that detects the correct operation of the CO sensing element, loss of power source for the portable generator system controlling CO exposure, and the end of life of the CO sensor. PGMA G300 requires that faults involving the CO sensing element, loss of power source for the CO shutoff system, and end-of-life condition be applied one at a time to the system's circuitry while the engine is running. The engine must shut off after each fault or end of

¹⁵ *Id.* at 24357.

life is introduced. The Commission has concluded that such requirements are necessary for ensuring the proper functioning of the shutoff system, and we agree.

Consumer Reports' testing experts recently observed a potential safety issue when removing a portable generator from warehouse storage. Although the generator had, until the time of its retrieval, remained in its original packaging and was never activated, CR staff could not start the unit and later found out that the CO sensor's battery had drained entirely. Our testing team hypothesizes that the generator's CO sensor was actively detecting CO while the unit was turned off. The CO detector battery is internally sealed in the CO sensing module and the team found that it is not replaceable. To address this issue and increase the lifespan of portable generators, the Commission should consider requiring that a CO sensor battery be accessible and replaceable by a consumer using ordinary tools.

V. Visual and Audible Notification Requirements Should Be Sufficiently Protective

Notification light

UL 2201 includes CO shutoff performance requirements, but lacks important notification requirements to notify consumers of the event. In contrast, PGMA G300 requires notification after a shutoff event, which consists of a "red indication" that may or may not be blinking for a maximum period of two seconds, but does not require the indication be illuminated, and fails to specify numerous qualities of the red indication, including size and a precise location. The CPSC's proposed notification requirements provide needed specificity and clarity, and we find these modifications to the PGMA standard to be in the best interest of consumers.

First, the proposed requirement to make the red indication illuminated reflects human engineering and human factors guidelines, which most commonly recommend illuminated indicators. Second, while PGMA G300 notification requirements emphasize visibility and prominence, additional location specificity would be beneficial. The proposed rule accomplishes this by requiring the indicator to be positioned so that it is "prominent, conspicuous, and not obscured when viewed from the startup controls," thus increasing the likelihood of consumer attention.¹⁶ Third, the proposed notification requirement provides a minimum size requirement for the red indicator of at least 0.4 inches in diameter, while PGMA G300 does not include a minimum size requirement, potentially allowing for indicators too small to be easily noticed. Such a requirement is critical to ensure that consumers with normal vision are readily able to see such a notification, and we find 0.4 inches to be a reasonable minimum size requirement. Finally, the proposed requirement, similar to PGMA G300, allows but does not require a flashing light. However, if manufacturers choose to incorporate such a feature, the proposed rule rightly specifies that a blinking indicator must be "no less visible than a steady light," and have a detectable flash rate between "3 and 10 Hertz (Hz) with equivalent light and dark durations."¹⁷

¹⁶ *Id.* at 24355.

¹⁷ *Id.*

Minimum duration of notification

Regarding the minimum duration of the indication, PGMA G300 specifies that the indicator must remain for at least five minutes after shutoff occurs, or until the portable generator is restarted. However, CR testing has shown that while it takes roughly five minutes to bring CO levels down from 800 ppmv to 400 ppmv at a location near the generator, CO concentrations can be markedly higher, and close to 1000 ppmv, at five feet above the generator. At this height, it can take roughly 15 minutes for concentration levels to drop below 400 ppmv. On the basis of these findings, five minutes is likely an insufficient duration for the indicator to remain, particularly given the range of environmental conditions in which generators may be placed. We recommend that the duration of the indicator be based on real-time detected CO levels, if possible, and include a minimum shutoff period that more accurately accounts for increased levels of CO that may be present at a higher elevation and the amount of time needed before these concentrations drop to a reasonably safe level.

Regarding the necessity of a minimum luminance requirement for the indication, and what an appropriate luminance requirement might be, CR's testing experts report that in their evaluations of dozens of portable generators, they have never had difficulties seeing the red indication required under the PGMA G300 standard. However, our testers were aware of what caused the generator to shut off, and why the notification was activated. This may not be the case with a consumer, and so it may be appropriate for the Commission to consider requiring a minimum luminance to ensure that the red indication quickly draws the attention of a consumer with normal vision and prompts them to take appropriate next steps.

Audible warning

In addition to a red, illuminated indication, the CPSC should require an audible warning to alert consumers when a generator shuts off, and a means to communicate actions to take in response to the shutoff. The duration of the audible warning should likewise be based on real-time detected CO levels, if possible, and a minimum period that reflects the time needed for CO concentrations to drop to a reasonably safe level, accounting for higher CO levels that may be present several feet above the generator. A bimodal warning system with such requirements is likely to be far more effective than a light alone at alerting consumers to the present danger of elevated CO levels. Further, an audible warning will greatly serve the several million Americans who are visually impaired, while increasing safety for all consumers. This feature would help alert consumers who are not actively monitoring a generator, or may not be near the immediate vicinity of where a portable generator is operating, and who otherwise might not be alerted by a visual warning that hazardous CO levels have been reached. Just as smoke and carbon monoxide detectors provide both visual and audible warnings to alert consumers when there is a potential risk to their safety, so too should portable generators. We recommend that the audible warning be similar in sound and volume to warnings from smoke and carbon monoxide detectors, as it can be reasonably assumed that consumers would associate this noise with potential danger and the need to take urgent action.

VI. The Proposed Marking and Labeling Requirements Are Appropriate, yet No Substitute for Performance Requirements

We agree with the CPSC’s proposal to take the notification-related marking and labeling requirements in PGMA G300—which provide a solid baseline—and enhancing them with additional clarifying language and images. This approach would further reduce CO poisoning risks to consumers, and we find the CPSC’s specific proposed modifications appropriate. While PGMA G300 requires that the notification label must be “readily visible” and “in close proximity to the notification,” we agree with the CPSC that more precise and uniform location requirements would be beneficial.¹⁸ As the CPSC proposes, the warning label should be located no more than 0.25 inches from the notification indicator, or alternatively the indicator should be incorporated into the label. The label should explicitly state why the generator shut off, rather than leave consumers to infer why it did so.

With the exception of highlighting key phrases, we support the use of sentence capitalization, rather than all-uppercase text, for legibility reasons. It is also useful to include clarifying language on the notification label, which functions to explain to consumers why a generator shut off and what actions they should take before restarting it. This will also reduce language redundancies with the mandatory “DANGER” label. Consumers would also benefit from a label that instructs them upfront to move the generator to a more open outdoor area before restarting it. A minimum size requirement is needed to ensure the label is large enough to be legible, and thus we support the proposed minimum dimensions and letter measurements.

CR also supports adding language, such as “Danger” or “Poisonous,” before “Carbon Monoxide,” as well as the inclusion of an image such as a skull and crossbones symbol, to the automatic shutoff warning. This additional text may help underscore to consumers the severity of the risks associated with carbon monoxide. However, since 2007 the CPSC has required a clear label on portable generators that warns consumers in direct, descriptive terms about the deadly risks of operating a portable generator in unsafe locations. With an average of 85 people dying in recent years from generator-related CO deaths, it is apparent that written warnings alone do not do nearly enough to protect consumers. Accordingly, we are glad to see a proposed safety standard that includes such strong performance requirements.

VII. Societal Benefits, While Potentially Undervalued, Greatly Exceed Estimated Compliance Costs

Over a 30-year period, the proposed rule is projected to prevent 2,148 deaths (nearly 72 deaths annually) and 126,377 injuries (roughly 4,213 injuries per year). The total annual benefits are estimated to exceed \$1 billion, with a per-generator benefit of approximately \$273. At a three percent discount rate, the net benefits amount to \$897 million per year. For every one dollar of direct costs to consumers and manufacturers, the proposed rule is estimated to generate more than seven dollars in benefits.¹⁹ These estimates strike us as reasonably and fairly reached.

¹⁸ *Id.* at 24351.

¹⁹ *Id.* at 24347.

Although the estimated benefits to the public far exceed the compliance costs, the current societal costs of illnesses, injuries, and deaths may be undervalued. In this proposal, the CPSC uses the value of a statistical life (VSL) developed by the U.S. Department of Health and Human Services, which, when adjusted for inflation, is \$11.6 million in 2021 dollars, to calculate societal costs.²⁰ The proposed rule does not distinguish between the VSL for children and adults, though the agency notes:

Research indicates that the VSL for children is higher than that of adults, as parents have been observed paying more to reduce the mortality risk of their children than what they pay to reduce their own mortality risks. A higher willingness to pay for risk reductions of their children's lives implies a higher VSL for children, which would indicate the benefit estimates developed in this assessment may be undervalued.²¹

We agree, and although the CPSC has already said that the estimated benefits of the draft proposed rule far exceed its estimated costs, the net benefits of the rule may be far greater than current estimates suggest. We encourage the CPSC to reconsider the VSL of \$11.6 million to better account for child victims of CO poisoning.

We find compelling the CPSC's determination that none of the considered alternatives to the proposed rule, including the adoption of either voluntary standard, would adequately reduce the risks posed by portable generators as effectively as the proposed rule. The CPSC asserts, and we agree, that the rule is expected to generate more net societal benefits than any of the proposed alternatives. We agree with the Commission's conclusion that because the proposed rule would apply to all manufacturers and importers of portable generators, its economic impacts should not be highly burdensome for any particular manufacturer or importer.

VIII. The Effective Date and Anti-Stockpiling Provisions Are Appropriate

In 2016, the CPSC published its first proposed rule for portable generators. This action by the Commission resulted in major improvements to both UL 2201 and PGMA G300, with both standards adopting CO hazard mitigation requirements in 2018. However, deaths and injuries related to CO poisoning from portable generators have shown no signs of abating, but rather appear to have trended upward in recent years. Industry compliance with these standards remains far below levels needed to adequately reduce the risk of injury or death associated with CO emissions, and the CPSC does not project that compliance will substantially increase. This remains the case even when sensitivity analyses account for higher rates of compliance. It is in the public's interest to finalize the proposed rule in a timely manner, as additional delay means additional potential danger to consumers. We find the proposed effective date of 180 days after publication to be reasonable, and encourage the CPSC to implement it.

We find the adopted Commission amendment imposing stricter limits on stockpiling to be reasonable and in the best interest of consumers. While CPSC staff, consistent with past practice, originally proposed a stockpiling allowance that would prohibit the manufacture or importation

²⁰ *Supra* note 9 at OS 178.

²¹ *Id.*

of noncompliant portable generators at a rate greater than 120 percent of a firm's base period, we find the amended rate of 105 percent to be more appropriate. Ideally, production rates would undergo no substantial increase, however, we consider it acceptable to permit manufacturers to increase their production rates in the interim by five percent. This change is consistent with the Commission's general intention to limit sales of products that insufficiently account for safety. We also find the proposed basis for calculating normal production, based on the calendar month with the median manufacturing volume within the last 13 months immediately preceding the month of promulgation of the final rule, to be reasonable.

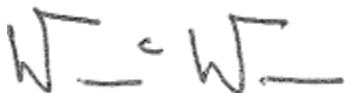
IX. The Scope Is Reasonable for Now, but Might Need Adjustment in the Future

Consumer Reports generally agrees with the scope of the proposed rule, and finds the CPSC's reasoning for currently excluding certain generators from the scope to be compelling. However, the CPSC should closely monitor the marketplace following the effective date, and be prepared to expand the scope of the rule to include new and innovative products as necessary. In the future, if manufacturers design portable generators that do not fall within the proposed scope, but present similar CO poisoning hazards to consumers, the Commission should move quickly to reevaluate—and, if warranted, expand—the scope of the rule to include such products.

X. Conclusion

Consumer Reports thanks the CPSC for issuing the supplemental notice of proposed rulemaking for a portable generator safety standard. Too many portable generator manufacturers have for years failed to put safety first, leaving consumers at risk for serious injury or death from CO poisoning. This strong mandatory standard incorporates the best elements of both current voluntary standards, as CR has recommended and reflected in our ratings, and modifies required elements to improve safety issues when needed. The CPSC has clearly demonstrated that the societal benefits of the proposed safety standard, while potentially undervalued, nevertheless far outweigh the estimated compliance costs of this long-overdue rule. As the independent agency that consumers rely on to help keep them safe from unreasonable product hazards, it is imperative for the agency to finalize this safety standard expeditiously. Thank you for your consideration of our comments.

Respectfully submitted,



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