



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Research Triangle Park, NC 27711

OFFICE OF
AIR QUALITY PLANNING AND STANDARDS

January 19, 2021

Mr. Adam Simpson, Founder and Chief Product Officer
Mr. Pierson Stoecklein, Head of Policy and Regulatory Counsel
Mainspring Energy, Inc.
3601 Haven Avenue
Menlo Park, California 94025

Dear Mr. Simpson and Mr. Stoecklein:

Thank you for your October 9, 2020 letter to the U.S. Environmental Protection Agency (EPA) detailing your linear generator technology and requesting that we determine whether this technology falls under the purview of Clean Air Act section 111 New Source Performance Standards (NSPS) applicable to either compression ignition (CI) stationary internal combustion engines (40 CFR 60, subpart IIII) or spark ignition (SI) stationary internal combustion engines (40 CFR 60, subpart JJJJ).

As noted in your letter, you have consulted with us regarding the classification of your linear generator technology. In our most recent correspondence with you (2018), we informally advised that the technology would most appropriately be regulated as a SI internal combustion engine because the technology's operating characteristics and fuel are similar to those used in SI engines.

Your October 9, 2020, letter notes that you have performed additional analysis of the NSPS and that you now conclude that the "source category EPA defined for purposes of regulating stationary internal combustion engines cannot reasonably be interpreted as encompassing" the linear generator technology. In your analysis, you represent that (1) Mainspring's linear generator does not and cannot produce useful "mechanical work" and that (2) Mainspring's linear generator is not a "combustion engine."

The EPA has reviewed your letter and agrees that Mainspring's linear generator technology is novel with notable differences from traditional internal combustion engines. Notably, the linear generator relies upon compression of a fuel/air mixture that continues until a low-temperature reaction occurs without burning or a flame, resulting in NOx emissions well below the NOx emissions limits in the engine NSPS. Further, we understand that your position is that the design of the Mainspring linear generator does not produce mechanical work that is taken off the generator, but rather, converts chemical energy into kinetic energy to directly produce electrical energy.

Based on our initial review of the additional information provided by Mainstream, we cannot at this time conclusively determine whether Mainspring's linear generator is covered by either of the NSPS for stationary internal combustion engines. However, we are initiating a process to collect additional information and determine whether issuance of a regulatory interpretation may be appropriate. That process may trigger the requirements of EPA's recently promulgated guidance

regulations at 40 CFR Part 2, subpart D. Such guidance could serve as a bridge until we open the NSPS for review, at which time, we may consider changes to the NSPS or the development of separate regulatory requirements, as appropriate, to better accommodate non-traditional and novel energy generation technologies. Such an undertaking would require normal rulemaking procedures, including public notice and comment.

If you have any questions, please contact Nick Hutson, group leader of the Energy Strategies Group, at hutson.nick@epa.gov or (919) 541-2968.

Sincerely,

PENNY LASSITER

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Penny Lassiter
Director
Sector Policies and Programs Division