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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

Federal Motor Vehicle Safety Standards;

Denial of Petition for Rulemaking

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Denial of Petition for Rulemaking.

SUMMARY: Based on the agency's evaluation, NHTSA denies a petition for rulemaking from Mr. David K. Aberizk, P.E., of Integrated Consultants Incorporated, who requests the development of safety standards for a driver-activated vehicle regenerative braking interface with distinct rear lighting indication. The petitioner claims that the recommended changes to the relevant safety standards would allow vehicle manufacturers to better utilize the regenerator technology to increase vehicle efficiency. NHTSA finds that some features of the suggested concept are not prohibited by existing Federal motor vehicle safety standards (FMVSS) and notes that Mr. Aberizk did not demonstrate how the other features address a motor vehicle safety need. FMVSS Nos. 108 and 135 currently specify performance requirements relevant to certain permitted technologies identified in the petition.

DATES: [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]

FOR FURTHER INFORMATION CONTACT: Ms. Lisa Gavin, Office of Crash Avoidance Standards, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590.

SUPPLEMENTARY INFORMATION:**I. Summary of Petition****II. Agency Analysis****III. Agency Decision****I. Summary of Petition.**

On April 14, 2012, David K. Aberizk, P.E., petitioned NHTSA requesting development of safety standards for a driver-activated vehicle regenerative braking interface with a distinct rear indicator lamp.¹ On July 14, 2013, Mr. Aberizk submitted additional information in the format of a petition for rulemaking. The agency considers these two submissions as one petition for rulemaking because both pertain to the same concept of driver-activated vehicle regenerative braking. Specifically, Mr. Aberizk requests that NHTSA define the location and geometric parameters for a brake control device and the actions required for safe operation. Additionally, Mr. Aberizk requests that NHTSA define the parameters for a rear lamp to signal vehicle slowing.

Mr. Aberizk states that regenerator technology is currently integrated as a component of the conventional friction braking system in electric or hybrid electric motor vehicles, which limits the potential of the device to recover energy. He claims that hybrid and electric vehicles with driver-activated regenerative braking systems (RBS) increases overall efficiency by 6 percent over existing RBS.²

¹ Original petition available at <http://www.regulations.gov>, Docket No. NHTSA-2012-0010-0003.

² Mr. Aberizk does not specify whether Graph 1 in Appendix A-1 of the additional data collected and reported July 14, 2013 refers to the overall efficiency of the vehicle at turning power into movement, or to the efficiency of the regenerative braking system in particular. As discussed further below, however, it is irrelevant to the agency's determination of whether to begin rulemaking to establish a new FMVSS.

Mr. Aberizk recommends that the agency establish a new safety standard for regenerator engagement to adopt performance requirements, which he believes will interest automakers in embracing increased efficiency concepts, such as his operator-initiated slowing design. Mr. Aberizk provided graphic illustrations showing potential locations for an activation control device on the steering wheel or gear selector, and an expanded center high-mounted stop lamp (CHMSL) assembly. In his first information submission, Mr. Aberizk refers the reader to the Integrated Consultants Incorporated website for additional details on the driver-activated RBS empirical test findings and his U.S. patent, Vehicle Regenerative Deceleration Actuator and Indicator System and Method.

In his supplemental submission, Mr. Aberizk states that current RBS technologies underutilize the potential of brake regenerators to increase vehicle efficiency. With an operator-initiated slowing feature added to existing RBSs, Mr. Aberizk claims that overall efficiency increases by 6 percent in hybrid and electric vehicles, and by at least 2.5 percent for mild-hybrid vehicles. As presented, the slowing concept relies on the driver to manually engage the regenerator to slow the vehicle, independent of the brake pedal application. Finally, Mr. Aberizk included a summary of the comment and the attachment he submitted to NHTSA's notice of proposed rulemaking (NPRM) to establish Corporate Average Fuel Economy (CAFE) Standards for model years 2017 and beyond.³

II. *Analysis of Petition.*

Although the submission met the requirements to be accepted as a rulemaking petition, NHTSA does not endorse specific products, designs, or equipment, as Mr. Aberizk requests. NHTSA develops and issues Federal motor vehicle safety standards in order to reduce crashes,

³ Mr. Aberizk's comment to that NPRM can be viewed at <http://www.regulations.gov>, Docket No. NHTSA-2010-0131-0278.

deaths and injuries resulting from motor vehicle crashes.⁴ Motor vehicle safety standards are primarily performance standards, intended to allow manufacturers to choose which products, designs, and equipment best satisfy the requirements. That said, in the interest of completeness, the agency conducted a technical review of Mr. Aberizk's petition. Because the petition involves topics related to multiple FMVSSs, the agency's technical review of the slowing device was separate from its review of the illumination indicator.

Slowing Device

Mr. Aberizk requests that NHTSA define the location and geometric parameters for an operator activated slowing control device with a human-machine interface required for safe operation. Mr. Aberizk offers anecdotal observations and evaluations, but did not submit quantitative data. For vehicles configured with the slowing device, he claims a 'noticeable' increase in range for test distances of 15 miles or greater, as well as a 50 to 75 percent reduction in brake pedal usage. The petition does not, however, assess how these factors, if accurate, would lead to safety benefits attributable to the driver-activated slowing concept. Additionally, NHTSA is not aware of any data that establish a correlation between enhanced RBS performance and reduced crash rates.

Perhaps more relevant, however, we note that a manually-enhanced feature to increase recovered braking energy is not prohibited by FMVSS No. 135, the light vehicle braking standard that includes requirements for the service brake system, associated parking brake system, and optional regenerative braking systems. FMVSS No. 135 defines RBS as an electrical energy system that is installed in an electric vehicle for recovering or dissipating kinetic energy and which uses the propulsion motor(s) as a retarder for partial braking of the

⁴ See 49 U.S. Code § 30101, Purpose and Policy, section (1).

electric vehicle while returning electrical energy to the propulsion battery(s) or dissipating electrical energy. FMVSS No. 135 expressly states that for an electric vehicle equipped with RBS, the RBS is considered to be part of the service brake system, if it is automatically activated by an application of the service brake control, if there is no means provided for the driver to disconnect or otherwise deactivate it, and if it is activated in all transmission positions, including neutral. For an electric vehicle that is equipped with antilock brake system (ABS) and RBS that is part of the service brake system, the ABS must control the RBS. A vehicle equipped with or without RBS must meet the stopping performance requirements of FMVSS No. 135.

Information compiled by the Federal government estimates the combined city/highway driving energy recovered by regenerative braking to be 5 to 9 percent.⁵ Mr. Aberizk claims that vehicles with driver-activated RBS would incrementally increase the energy recovered by an additional 2.5 to 6 percent. Although the amount of energy recovered may be considered economically beneficial, it is not a safety concern that warrants the adoption of a safety standard. Mr. Aberizk extolled the fuel economy benefits of the technology in support of his petition, but fuel economy benefits are not relevant to whether a technology will improve safety. Moreover, even in the CAFE program, NHTSA does not mandate the use of particular technologies. Like the FMVSSs, CAFE standards are performance standards. Manufacturers are free to choose whatever technologies they wish, and NHTSA does not specify particular technologies in that context either.

Illumination Indicator

In the petition, Mr. Aberizk also requests that NHTSA define the parameters for an

⁵ <http://www.fueleconomy.gov/feg/atv-hev.shtml> (2% to 4% highway driving and 8% to 14% city driving)

additional rear lamp to signal vehicle slowing. Because we are denying the petition with respect to braking, we need not address the part of the petition related to lighting because without a new brake requirement, there is no need for a new lighting requirement.

In order for NHTSA to consider establishing a new safety standard, the agency must determine that a safety need exists and that the suggested concept will reduce the crash risk. For example, NHTSA completed rulemaking action to require center high mounted stop lamps as standard lighting equipment after extensive research that quantified the crash problem and estimated the safety impact and the effectiveness of the new equipment.⁶ Hence, a petitioner bears the burden of providing data to justify the safety need for the recommended amendments to the relevant safety standard.⁷

Finally, Mr Aberizk claims that development of safety standards will keep product liability of an operator-initiated slowing system neutral to the industry. Because NHTSA regulates motor vehicle safety and not tort liability, the agency refrains from drawing legal conclusions about Mr. Aberizk's operator-initiated slowing device.

III. *Agency Decision.*

In accordance with 49 CFR Part 552, this completes the agency's review of the petition for rulemaking. NHTSA believes that the current requirements specified in FMVSS Nos. 108 and 135 do not prohibit certain features suggested in the petition. The petitioner did not demonstrate a safety need or substantiate claims of reduced crash risk associated with the petitioned concept. Therefore, NHTSA denies David K. Aberizk's petition.

⁶ See 48 FR 48235, October 18, 1983.

⁷ See Statement of Policy published in 63 FR 59482, on November 4, 1998.

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.95.

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Raymond R. Posten

Associate Administrator for Rulemaking

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