



FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON DC

Mike O’Rielly  
Commissioner

June 3, 2020

The Honorable Dan Brouillette  
Secretary  
U.S. Department of Energy  
1000 Independence Avenue SW  
Washington, DC 20585

Dear Secretary Brouillette:

The explosive growth in wireless communications over the last many years has resulted in increasing interplay involving building codes, construction techniques and materials, and wireless communications coverage. In light of this, I believe that there is an opportunity for the Department of Energy (the Department) and the Federal Communications Commission (the Commission) to collaborate more extensively in order to produce thoughtful building codes that will not only allow the Department to fulfill its mission, but also expand wireless spectrum opportunities, and thus facilitate more consumer uses. Further, the Commission would benefit from the Department’s expertise regarding building materials when formulating our technical rules.

The Department’s efforts to improve the energy and thermal efficiency of housing and other buildings and its corresponding involvement in setting federal, state, and local building codes has had an impact on wireless signals near and within these structures. Specifically, higher energy efficiency requirements, construction techniques, and the use of certain materials, such as metal-coated windows, double-pane windows, and metal foil barriers, have increased what is known as building entry and exit loss (“BEL”). On this point, Leading Builders of America recently filed the following excerpted comments in a Commission proceeding: “[A]s a result of ever more stringent national, state, and local building codes, requiring higher levels of thermal efficiency, home builders across the U.S. have used more and more of the materials and building techniques identified by the [International Telecommunication Union, a specialized U.N. agency for communications and spectrum matters,] to directly impact building entry loss.”<sup>1</sup>

From the Commission’s standpoint, the need for spectrum efficiency is increasingly important as consumer demand for wireless mobility continues to grow. Properly understanding how changes in building requirements affect propagation characteristics of wireless signals is critically important for our mission. Therefore, better understanding the Department’s efforts can allow the Commission to authorize and introduce increased wireless functionality in spectrum bands without causing harm to other services, including those of incumbent users. Higher BEL means that there is less risk of harmful interference from competing signals from inside and outside modern structures, which means there may be opportunities for more flexibility in certain wireless operations.

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<sup>1</sup> Comments of the Leading Builders of America, ET Docket No. 18-295 (Feb. 15, 2019), [https://ecfsapi.fcc.gov/file/1021496728775/%20021419-Leading\\_Builders\\_of\\_America\\_6GHz-Comments.pdf](https://ecfsapi.fcc.gov/file/1021496728775/%20021419-Leading_Builders_of_America_6GHz-Comments.pdf)

Accordingly, with the support of Commission Chairman Pai, I propose the formation of an inter-agency working group between the Commission and the Department for the purposes of discussing how modern building techniques affect wireless propagation and exploring modifications to building codes that would promote wireless spectrum efficiency. Specifically, our respective agencies could further explore the effects of model building codes on BEL; whether the building code-setting process should take into account the potential impact of various energy-saving techniques on BEL; and how this information can better inform architectural and building construction considerations in the future.

I appreciate your consideration of this proposal and look forward to discussing the matter at your earliest convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "m. Rielly". The signature is fluid and cursive, with a large initial "m" and a long, sweeping underline.

Michael O'Rielly