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The Honorable Lamar Smith
Chairman
House Committee on Science, Space &
Technology
2409 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Eddie Bernice Johnson
Ranking Member
House Committee on Science, Space &
Technology
2468 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Smith, and Ranking Member Johnson,

I am writing to express my strongest support for the Solar Fuels Innovation Act. Solar fuels, or artificial photosynthesis, has the potential to be a game-changing energy technology, cost-effectively producing fuels that are compatible with our existing infrastructure, and providing both energy and environmental security to our nation. Solar fuels production would allow for massive grid-scale energy storage that would enable energy production from intermittent resources such as wind and solar, because the energy stored in the solar fuel could be released upon demand even when the wind is not blowing or when the sun is not shining. Solar fuels would also provide a compelling solution to the critical need for carbon-neutral transportation fuels, another critical gap at present towards reaching a full carbon-neutral energy system.

Even though solar fuels is at the early-research stage, it has been identified by visionaries like Bill Gates and others who have helped maintain U.S. leadership in science and technology as a critical energy technology option that should be fostered by increased energy research. Although challenging, the community of scientists working on developing solar fuels systems are making great progress. More advances will surely emerge by leveraging the expertise of interdisciplinary teams of scientists and engineers, as authorized by this bill.

Many approaches to solar fuels production are promising and should be pursued in parallel. Moreover, many types of solar fuels can be produced, including gases and liquids, with possible fuels including hydrogen, methanol, methane, and gasoline. Fuels can readily be interconverted using known processes practiced at global refinery scale, so all options should be pursued in parallel to determine which solar fuels are the most technically feasible and promising for implementation.

The Solar Fuels Innovation Act is also needed to ensure American competitiveness. America can beneficially leverage international efforts in solar fuels research, but needs to stay in the lead domestically, as would be enabled by this bill.

Solar fuels research offers an intellectual grand challenge to our junior-level scientists such as graduate students and post-doctoral fellows, because it simultaneously involves frontier research challenges in nanoscience, materials science, applied physics, chemistry, and chemical engineering. It is a wonderful, use-inspired focal point to demonstrate American innovation and invention in an area that would be of great societal benefit. This authorization would enable American scientists to perform the foundational research that underpins development of a technology that can provide better energy options than those that we have now available, insuring a safe and secure energy future domestically and internationally.

Sincerely,



Nathan S. Lewis
George L. Argyros Professor of Chemistry

NSL:bgm