

# Renewable Energy and Resources

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# Energy Materials and Fuel Cell Research

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## *Eric L Miller*

*U.S. Department of Energy, USA*

### **U.S. Department of Energy Hydrogen and Fuel Cell Technology Perspectives**

Today the technology around generating efficient and sustainable energy is rapidly evolving and hydrogen and fuel cells are versatile examples within a portfolio of options. The U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy's Fuel Cell Technologies Office (FCTO) addresses key technical barriers faced by hydrogen and fuel cell technologies through a comprehensive portfolio of early-stage research and development (R&D) with the potential to meet DOE technical, economic and energy security targets that ensure competitiveness with incumbent technologies in the market and alignment with national priorities. This presentation will provide an overview of DOE FCTO early-stage R&D activities in hydrogen and fuel cells, highlight technology status versus targets and identify recent achievements and market trends. The presentation will also offer insight into future prospects of hydrogen and fuel cells to enable energy security and resiliency across the transportation and energy generation sectors. Examples include the value proposition of hydrogen and fuel cell technologies as well as the potential of DOE's H2@Scale concept to utilize hydrogen as a large-scale energy carrier to enable benefits across multiple sectors. Supporting foundational materials research in hydrogen and fuel cell technologies being conducted through FCTO's Energy Materials Network Consortia will also be described.

### **Biography**

Dr. Eric L. Miller serves as Hydrogen Production and Delivery Program Manager at the Fuel Cell Technologies Office of the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. His professional career in alternative energy research has spanned more than 25 years, centering on solar energy conversion and on hydrogen and fuel cell technologies. He is widely recognized as a world leader in photoelectrochemical hydrogen production for his pioneering research in this field. Recently, Dr. Miller has played an instrumental role in the launch and management of DOE's Energy Materials Network, which aims to accelerate materials discovery and development critical to a broad spectrum of key clean energy technologies.

[Eric.Miller@ee.doe.gov](mailto:Eric.Miller@ee.doe.gov)

### **Notes:**