U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

# Vehicle Technologies Office Newsletter

## Director's Corner

DOE's Vehicle Technologies Office is proud to announce the launch of its office-wide newsletter featuring accomplishments in office-funded research efforts. We anticipate this will become a bi-monthly source to keep readers up-to-date on VTO activities.

In addition to our new newsletter, VTO is celebrating another successful Annual Merit Review. This year's review took place June 5 - 9. We welcomed over 1,500 attendees and reviewed more than 300 VTO-funded projects during the week's events. It was my first AMR and I was very impressed with the energy of all the participants and presenters. Thank you to all who helped make this event outstanding.

-Michael Berube, VTO Director

## Meet the Director:

Michael Berube

Michael Berube, the new director of the Energy Department's Vehicle Technologies Office, sat down with the Amped Up! team recently to discuss his entry into vehicles, where we're headed, and a love of off-roading. Michael comes to VTO with a long history in the automotive industry. With a family that includes 3 Eagle Scouts, in his free time Berube spends a lot of days backpacking and enjoying the national parks around the country. Read his interview.

## Office Highlights

### 2017 Annual Merit Review Presentations Available for Download

All of the presentations from the 2017 Vehicle Technologies Office Annual Merit Review and Peer Evaluation are now available for download through the Annual Merit Review presentation database.

### VTO Initiates Research on Energy Efficient Mobility Systems

VTO launched Energy Efficient Mobility Systems (EEMS) to leverage emerging disruptive technologies such as connected and autonomous vehicles, information-based mobility-as-a-service platforms, and advanced powertrain technologies to identify and exploit energy efficiency opportunities at the transportation system level. The knowledge generated by this effort will strengthen understanding of how evolving technology impacts energy efficiency, and ultimately what new technology is needed to improve the energy efficiency of transportation as a system (i.e. mobility). A VTO-funded paper shows that connectivity and automation disruptions could result either in a potential 200% increase in baseline energy consumption, or in a 60% decrease in energy use.

### Co-Optimization of Fuels & Engines

In the first half of 2017, the Co-Optimization of Fuels & Engines (Co-Optima) initiative by VTO and DOE's Bioenergy Technologies Office (BETO) reached a major milestone. It identified representative blendstocks that can be made from either bio- or non-bio-based domestic resources that can significantly improve boosted spark-ignition engine efficiency. The team also developed an updated engine efficiency merit function based on experiments and simulations to quantify the impact of key fuel properties on advanced turbocharged gasoline engine efficiency and performance. The Co-Optima team also held a listening day with a broad range of stakeholders to garner recommendations for the initiative's multi-year strategic plan. Learn more about the Co-Optima initiative and its goals.

## Social Media and Blogs

### Electric Vehicle Charging Interoperability Blog

VTO is working on understanding and reducing technical barriers to high-power extreme fast charging which could significantly cut the time it takes to recharge a PEV's battery. Wireless charging could also provide increased convenience to drivers, and researchers are exploring ways to cost effectively and efficiently produce the technology. Read VTO's recent blog on infrastructure network interoperability.

### Ohio State University Named Year Three Champion of EcoCAR 3 Competition

Ohio State took home first place in the third year of EcoCAR 3, an Advanced Vehicle Technology Competition, sponsored by the U.S. Department of Energy (DOE) General Motors Co., and over 30 other industry sponsors. Check out the Facebook LIVE video archive on the DOE Office of Energy Efficiency and Renewable Energy Facebook Page to take a ride and learn about students' experience competing in the latest Advanced Vehicle Technology Competition.

## Reports and Publications

Find more on VTO's Report & Publications page.

### Considerations for Corridor and Community DC Fast Charging Complex System Design

This report focuses on direct current fast charger (DCFC) systems and how they can be deployed to provide convenient charging for PEV drivers. It considers lessons learned from previous DCFC deployment and data collection activities are shared to describe consumer experience with DCFC systems to date. Read the full report.


### Analysis Reports: Data Book & Market Report

This 35th Edition of the Transportation Energy Data Book (TEDB) is a compendium of data on transportation with an emphasis on energy. View the data book. The Vehicle Technologies Market Report details the major trends in U.S. light-duty vehicle and medium/heavy truck markets. Download the report.

### U.S. DRIVE Accomplishments

The U.S. DRIVE Partnership (Driving Research for Vehicle efficiency and Energy sustainability) is a voluntary government-industry partnership focused on precompetitive, advanced automotive and related infrastructure technology research and development. The Partnership benefits from a history of successful collaboration across multiple technical teams, each focused on a key area of the U.S. DRIVE portfolio. These teams convene the best and brightest scientists and engineers from U.S. DRIVE partner organizations to discuss key technical challenges, identify possible solutions, and evaluate progress toward goals and targets published in technology roadmaps. For highlights of the Partnership's technical accomplishments, see the 2016 Technical Accomplishments Report.

### Challenges and Opportunities of Grid Modernization and Electric Transportation

Plug-in Electric Vehicles (PEVs) have the potential to revolutionize the transportation fueling system in our country. However, using electricity as a fuel means reliance on the country's electric power grid. While the grid is very reliable, the electricity sector is seeing significant changes in generation mix and load at a rapid pace. This white paper examines the importance and value of PEV integration with the electric power grid by identifying challenges, describing each sector's advances, and then detailing several opportunities resulting from integrating the two sectors. Read white paper.