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Skalny Addresses Importance of Improved Fuel Efficiency at SAE Panel

For the U.S. Army to be successful in the field, it is imperative that it continue developing fuel-efficient methods of powering its ground vehicle fleet.

That was the message Paul Skalny delivered to an audience at the Society of Automotive Engineers (SAE) 2009 World Congress at Cobo Center in Detroit, MI, on April 22. Skalny, Director of the U.S. Army Tank Automotive Research, Development and Engineering Center's (TARDEC's) National Automotive Center (NAC) was one of four industry experts invited to address the issue of how fuel price trends will influence automotive technology, research and development and implementation.

Skalny provided the Army's viewpoint during the panel discussion, which also included Kenneth Howden from the U.S. Department of Energy, Roger Clark from General Motors and Dean Tomazic from FEV, Inc. The panel was moderated by Gerhard Schmidt, Chief Technical Officer for Ford Motor Company.

Fueling the Army's fleet of vehicles has always been of utmost importance, Skalny explained. In the waning days of World War II, as Army General George S. Patton's Third Army was down to only a half-day supply of fuel, Patton went before General Omar Bradley and said that if he had 400,000 gallons of gasoline he could get his troops into Germany. Reading from Bradley's memoirs, Skalny revealed that Patton "might as well have asked for the moon," as a fuel shortage had affected U.S. troops in Europe. Ironically, the reason for the shortage stemmed from the amount of fuel used to bring gasoline to Soldiers via a convoy system known as the Red Ball Express. "There could be no fuel without the Red Ball and yet the Red Ball consumed so much fuel that it made the problem worse," Skalny revealed. "Red Ball trucks daily consumed more than 300,000 gallons just to get to the front."

The Army faces a similar challenge today. While many tend to believe the bulk of the Army's fuel supply is used by fighting vehicles and tanks, a majority is actually used for transportation to get the fuel to those vehicles. Prior to engagements in Afghanistan and Iraq, the Army used an average of 50 million gallons of gasoline per year. Since 2003, the amount has increased to about half a billion gallons of fuel per year. Skalny stressed the increase in fuel consumption, coupled with unpredictable oil prices, makes it essential for TARDEC to partner with industry to develop more fuel-efficient vehicles. "When you really start taking a look at fuel efficiency improvements, it is at the crux of the matter for the military that we invest in those technologies and partner with you," Skalny told the audience. "A \$10 per barrel increase in oil increases Department of Defense costs by \$1.3

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



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billion per year. So when the price went considerably up in 2008, the Department of Defense was spending about \$18 billion a year in fuel.”

“Researching and developing more fuel efficient ways of powering vehicles is one of TARDEC’s core goals,” Skalny stated. As Soldiers face increased threats in the field, new armor developments add to the weight and negatively impact a vehicle’s performance, including fuel efficiency. Developing solutions for those issues is essential to protecting Soldiers while ensuring that they are still able to do their jobs effectively. “It is all about the warfighter,” Skalny stressed. “In many cases, 70-percent of the bulk tonnage we take to war is fuel. So anything that we can do to increase the fuel efficiency of our platforms is critical.”

Decreasing the amount of fuel used in the field can reduce the number of trips Soldiers make in the field. In his presentation, Skalny revealed that a 1 -percent decrease in fuel consumption would lead to more than 6,400 fewer Soldier trips. Increased fuel efficiency would also positively impact work done on Army bases, as increases in fuel prices often lead to unexpected cutbacks in base operations to pay for more fuel. Improved fuel economy would also reduce costs of overseas operations. “The price of fuel for us is overall about \$20 per gallon,” he explained. “If you have to helicopter that into Afghanistan, now you’re starting to take a look at upwards of about \$600 per gallon.”

Skalny explained TARDEC and the NAC are invested in pursuing alternative forms of powering vehicles. TARDEC and its partners are committed to developing advancements in energy generation, distribution and transfer and developing vehicle applications that increase fuel economy. “TARDEC partners,” Skalny stated, “are involved in the research and development of improved powertrains, batteries, alternative fuels and hybrid-electric vehicles that may ultimately provide cost-effective and fuel-efficient systems for Soldiers. TARDEC’s display at SAE World Congress showcased many of these new technologies, including hybrid-electric vehicles, advanced Lithium-ion batteries and the Electronic Power Control and Conditioning module, which converts various power sources into a single, efficient 50- or 60-hertz alternating current output to power critical military equipment, hospitals and tactical operation centers in the field.”

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U.S. Army Tank Automotive Research, Development and Engineering Center’s National Automotive Center Director Paul Skalny addresses the Army’s need for more fuel efficiency at the Society of Automotive Engineers 2009 World Congress in Detroit, April 22, 2009. This year’s SAE event theme is “Racing to Green Mobility,” and TARDEC’s



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display features alternative energy sources it has been developing. (U.S. Army TARDEC Photo by Elisabeth Carnegie)

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U.S. Army Tank Automotive Research, Development and Engineering Center's National Automotive Center Director Paul Skalny talks about the Army's need for more fuel efficiency at the Society of Automotive Engineers 2009 World Congress in Detroit, April 22, 2009. Skalny was one of four industry experts invited to address the issue of how fuel price trends will influence automotive technology. The other panel members pictured behind Skalny are, left to right, U.S. Department of Energy's Kenneth Howden, General Motors' Roger Clark, Panel Moderator and Ford Motor Company Chief Technical Officer Gerhard Schmidt and FEV Incorporated's Dean Tomazic. (U.S. Army TARDEC Photo by Elisabeth Carnegie)

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