FUEL FOR THE FUTURE –
What is the Overall Picture of a "Future Fuel" Today?

Editor's Note: Reg Modlin is a Senior NRS Advisor and a veteran of 40-plus years in the automotive industry. Over the next several posts, he will examine the steps that have been taken – and need to be taken – to attain the transportation fuel that best serves our nation for years ahead. All blogs in this series will be made available here.

Pursuit of abundantly available, energy-efficient, environmentally beneficial, low-cost transportation fuel has accelerated in recent years. The call to action has been, and will continue to be, driven by performance standards imposed by governments world-wide. The level of energy efficiency performance now on the horizon demands joint consideration of engines and fuels as systems that work together to optimize energy efficiency.

This discussion is not about the desirability of vehicles powered by electricity. That subject will evolve over time with the market deciding whether it prefers such products. While electric powered cars are on the horizon, decades will pass before total transition would be made. Until that time, internal combustion engines will be in the market.

The challenge for discussion here is "What should gasoline look like in the upcoming several decades?" If an improved gasoline could be made available in the short term that enables improved energy efficiency with better environmental performance at lower cost to customers, why would that fuel not be called for by responsible policy makers?

History shows that transformation of retail fuel and vehicle technologies takes considerable time. If, for example, strong vehicle performance requirements are put into place for 2050, consideration of vehicle design, testing, production adoption, and fleet turnover dictate that the time to identify the fuel of the future is now. With consideration of the time needed to introduce a new fuel, there will be only one chance to define and change over to that fuel within the next couple of decades. Transforming the fleet to the technologies that will be in the car park in 2050 means that all new vehicle production in 2030 must contain the technologies that are expected to support the performance needed from the 2050 fleet. Time is short to identify and implement the adoption of a new gasoline.

This series is aimed at building the case for immediate definition and deployment of High-Octane, Low-Carbon (HOLC) gasoline to take the place of today's conventional, regular, gasoline. Broad collaboration between the Department of Energy (DOE) and their supporting National Laboratories, automobile manufacturers, and major oil companies resolved that out of hundreds of possible options, the clear best option for a next generation gasoline is broadly described as a high(er) octane gasoline created by increasing the amount of ethanol blended into the finished fuel. For example, a 98 RON octane gasoline could be created by blending current (E10) gasoline base blend (BOB) with higher volume (25 percent) of ethanol, resulting in an E25 finished product.

Ethanol is already used in the nation's fuel pool. Virtually the entire gasoline pool is a 10-percent blend today. With the recent announcement by EPA to allow E15 to be used year-round, the volume of ethanol in gasoline could increase 50 percent without anyone noticing. The question for us is whether an increase to 25 percent can be supported: to do so, biomass feedstock production, ethanol production, bulk and retail distribution infrastructure must be capable.

In this series, we will look at each of the challenges in turn. Can the agriculture sector provide the volume of feedstock needed? What does this mean to land use and pricing of food related portions of the market? Can the distribution infrastructure transition to a higher blend of ethanol? At what cost and in what timeframe? And, how should a clear, strong policy directive be created and broadcast?

Coming next – Ethanol is available now to provide HOLC gasoline at least cost to consumers.