
FUEL FOR THE FUTURE – An Introduction

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](#).

Let's accept a challenge. What should liquid fuel in the next twenty years look like? Whatever the future of electric powered vehicles, liquid fuels to power internal combustion engines will be used for decades to come. Are we going to stay with the same loosely controlled fuel of the past? Or will we join the modern world by stepping up to high-octane fuels?

I have taken on a discussion of these questions over the course of many years in the motor vehicle business. In that time, alternate fuels have come and gone. The pursuit of alternative fuels has always been noble, going back to the beginnings of the industry a hundred years ago when electricity made its first strong run at dominance.

In my 43 years working in the industry, I enjoyed the opportunity to share thoughts and challenges with many in a variety of sectors. That certainly includes colleagues in the automotive sector and many in the oil, refining, agricultural and methanol and ethanol sectors. I also have very positive relationships with federal and state agencies and the National Labs. From that background, I have the opportunity to look at the state of – and content of – the discussion regarding the future of fuels from the perspective of a retiree not beholden to any of the named sectors. Here we go.

Over the years – with the acknowledgement and support of automobile manufacturers, major oil companies and many others – the Department of Energy (DOE) has studied the life-cycle of several fuel streams and continued with a study of hundreds of molecules that could be considered in evolving liquid fuels. Two observations were striking: One, good opportunity exists to greatly reduce life-cycle emissions of liquid fuels. In addition, the data shows clear advantages to the expanded use of ethanol in gasoline. These advantages start with the valuable increase in gasoline octane caused by simply raising the volume percentage of ethanol. Our current retail fuels already contain ethanol; expanded use is occurring due to the growth of E15 and E85 products; and there is a strong potential to offer new, higher-ethanol products at reduced cost at retail, encouraging the willingness of the infrastructure developers to support this trend.

Analysis in the past 5-10 years arguably left open questions about ethanol's combustion efficiency, potential environmental effects, available alternatives, commercial availability, impacts to land use and food production, and more. Contemporary analysis, however, has discovered that agricultural technologies have continued to evolve. Land use evaluation technologies have greatly evolved. And the use of ethanol in the nation's fuel pool is well accommodated and expanding.

With consideration of the above, one needs to ask: Where do we stand now? Over the next four articles, we will look at how ethanol fits into the present-day assessment of potential future fuels. We will look at the value of octane; the ability of the feedstock growers and ethanol suppliers to support growth of ethanol up to about 25 percent of the future gasoline pool; whether the infrastructure can support this growth; and who may be in a position to drive desired market development to facilitate such change. So, let's get started.

Coming [next](#) – What is the overall picture of a future fuel today?