

NH₃

carbon-free liquid fuel

“NH₃ is the only realistic energy solution that makes sense.”

Matt Simmons, National Petroleum Council, Council on Foreign Relations, Founder, Ocean Energy Institute

Identifying and developing critical energy technologies for the post fossil fuel era will be the driving force in the 21st century economy. Likely, no one solution can replace all the fossil fuel applications which make modern society possible. Wind and solar are beginning to displace fossil fuels in power generation. Although battery/hybrid systems can power some vehicles, there are many engine applications where battery based systems cannot be used and liquid fuel is critical. NH₃ (anhydrous ammonia) is that fuel. NH₃ is the only practical, high energy density carbon free liquid fuel which can be manufactured using any energy source (traditional or renewable) from air and water, or alternatively from biomass. When burned, it generates only nitrogen and water vapor and emits no greenhouse gases or carbon particulates. NH₃ can be used as a single fuel, in combination with gas/diesel or as the preferred storage medium for hydrogen. NH₃ can be produced at a price lower than or competitive with petroleum based fuels.

New technologies for production of NH₃ without fossil fuels and new super efficient NH₃ engine designs can make a zero emission engine a reality today, and provide the opportunity to dramatically reduce or eliminate our reliance on imported oil. Although NH₃ fuel seems like a new idea, it has a long history, from WWII buses to the X15 Rocket plane to Department of Defense alternative fuel research. Today, researchers and inventors have made NH₃ fuel a viable alternative to fossil fuels.



Why is NH₃ so advantageous as an alternative fuel?

- NH₃ can be produced from any raw energy source (i.e. wind, solar, biomass, coal, nuclear, hydro etc.)
- Environmentally friendly--NH₃ engines release zero carbon emissions
- NH₃ can be used as a fuel in diesel engines, fuel cells, spark ignited engines, gas turbines, etc.
- NH₃ is extremely efficient at storing energy from renewable systems
- NH₃ is cost effective, it is competitive with diesel and gasoline
- NH₃ storage and delivery systems are already in place, and existing natural gas distribution can be easily converted to NH₃
- NH₃ has a proven, acceptable safety history for over 75 years
- NH₃ fuel can be produced from renewable power sources. It is a sustainable fuel.
- NH₃ can be 100% produced in the U.S. using American technology

In addition to a wide selection of established NH3 technologies, new NH3 energy technologies are proven technologies, and are ready for investment at both the pilot and commercial demonstration stages. There are a number of investment opportunities available at a variety of levels, both in the US and internationally, with the potential for both near term and long term returns, in both production and usage.



***“If I were to be rewarded for success and reprimanded for failure, I would pursue NH3 (ammonia) as the most promising hydrogen carrier to meet the 2015 Freedom Car goals”
George Parks, Conoco/Phillips 9/25/2006***

Why NH3 Fuel—Available Today!

There are no major technical challenges with NH3 fuel. It is completely sustainable. We know how to make it, and we know how to make it work in engines. We have a reliable infrastructure for distribution and understand how to handle it safely. NH3 is a proven resource that can be online for additional applications in 2-3 years, not decades. Existing alternatives to liquid petroleum fuels are problematic...neither electric vehicles nor hydrogen fuel can replace gasoline and diesel in heavy transportation, power generation and a host of other applications. NH3 fuel is a high energy density, zero emission liquid fuel which can be renewably produced and used with no carbon footprint.

NH3 offer the most effective strategy for energy transition away from carbon. And NH3 will be the carrier of hydrogen in the new hydrogen economy.

For Information, Contact the NH3 Fuel Association

John Holbrook, Executive Director
Email: john.holbrook@charter.net
Phone: 509 396-2082

Larry Bruce, Chairman
Email: nh3fuel@gmail.com
Phone: 520 665-8710