



FuelPositive
Fuel For A Mindful World

The Hydrogen Economy

- **Carbon-free NH₃ will play a key role in moving us into the hydrogen economy.**
 - **Carbon-free NH₃ is the enabler for hydrogen-based solutions.**
- It has been widely acknowledged that hydrogen is potentially the perfect fuel to replace fossil fuels, particularly in the global transportation sector.

The world can't wait!

- But, significant problems associated with hydrogen will require decades of development before it can be safely and effectively used as a reliable source of energy – on its own.
 - Producing pure hydrogen is energy-intensive and the end-product is highly volatile.
 - Storing pure hydrogen is difficult.
 - As a liquid, it boils off at standard temperatures (e.g., a car gas tank filled on Friday would be empty by Monday without being driven, just because of room-temperature boil-off).
 - As a gas, it requires extreme pressure to store, which is both costly and technically challenging.
 - Transporting pure hydrogen is difficult and dangerous.
 - An effective distribution network for hydrogen has not yet been developed.

- Being the smallest element on the periodic table, hydrogen leaks into the crystalline structure of metals, making the metals brittle and susceptible to cracking and failure.
- With the extreme high-pressure distribution requirements to transport hydrogen, the network would need to be built from the ground up at enormous cost.

- **Not only does the production of FuelPositive carbon-free NH₃ require much less energy than producing hydrogen on its own, but ammonia stores 65% more hydrogen than highly compressed pure hydrogen, making ammonia the most efficient way to store and transport hydrogen.**
- The storage and distribution infrastructure for carbon-free NH₃ already exists.
 - Ammonia is regularly transported in tanker trucks, through pipelines and on ships with 120 ports around the world equipped to handle it.
 - Additionally, the current propane gas distribution infrastructure can be converted to handle ammonia.
- FuelPositive's in-situ carbon-free NH₃ modular production systems can be installed with the end users, reducing global reliance on massive refineries, supertankers and pipelines.