



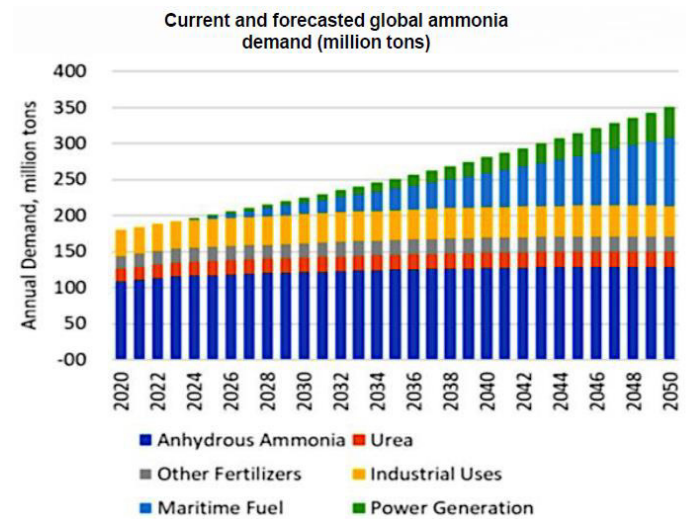
Green Ammonia Market Assessment and Business Strategy

Situation

A consortium of energy companies joined together to identify the highest value hydrogen businesses to pursue. One of the businesses under consideration was the production and sale of green ammonia, produced using low and zero carbon hydrogen and nitrogen. One key question revolved around determining if certain renewable energy and zero carbon power generating assets could be leveraged to produce green ammonia, achieve sufficient market share, sales and necessary price. Other questions included understanding current and future ammonia markets, the economics of ammonia distribution, and the geographic market density.

Solution

Velerity was tasked with building a thorough understanding of the ammonia market opportunity associated with solar, wind and other location specific zero carbon generating assets with the objective of developing a viable low carbon ammonia business plan and entry strategy. The solution included (1) developing an understanding of the current global ammonia market in terms of volumes, sources, buyers and pricing; (2) characterizing existing market segments and emerging growth markets for green ammonia; (3) characterizing state-level market for ammonia including volumes and prices; (4) identifying production facilities to establish competitive intensity; and (5) characterizing ammonia distribution modalities including price and competition implications.



Result

The consortium was provided a detailed location-specific assessment of the viability of producing ammonia utilizing zero carbon energy sources, considering the addressable market, distribution logistics, production economies, competitive intensity and pricing viability. A key insight involved understanding location specific pricing of ammonia given production locations, scale economies, distribution modalities and distribution costs. It was determined that the success of a green ammonia strategy is predicated on locating scale production facilities in markets where current ammonia prices are exacerbated by high distribution costs.