United Hydrogen

- Largest Privately held Bulk Hydrogen Supplier in North America
- Founded in 2005
- Headquartered in Pittsburgh, PA
- 16 employees
- Manufacturing Facility in Charleston, TN
- Market Segments:
  - Servicing the industrial hydrogen markets in the Eastern and Midwestern United States since 2008
  - Hydrogen Fueling Station infrastructure, JFK Airport
- Recently launched a $36mm project for a hydrogen liquefaction facility
- Engaged in disruptive hydrogen delivery and storage methods
US Hydrogen Market

- Liquid Hydrogen (LH2) is the most dominant form of hydrogen in the US market
  - 90% LH₂ - 10% Gaseous
- Current US LH₂ production is 245 Tons per day (TPD)
- Additional 20 TPD in 2 years
- Majority of supply is provided by Chlor-Alkali facilities
  - Balance are Steam Methane Reformers (SMRs)
- Additional capacity will require at least 5 years to develop
- US merchant demand is slightly below supply
  - Between 200 TPD and 245 TPD
  - Evidenced by inability to supply during outages
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- Only 11% of west of the Rocky Mountains
- Fuel Cell adoption has already begun to strain the market

- Hydrogen supply is needed in the California market
  - Ensure long term viability of FCEVs
  - Keeps H₂ costs low
CA Hydrogen Supply

- Leverage new technologies for Green Sources (Wind, Solar and Bio)
  - Challenged by compression
- Explore new supplies with disruptive technologies
  - Hydrogenious’ Liquid Carrier Model
  - Metal Hydride
  - Other
- Will require demand to attract investment
  - Fleet vehicles
  - Bus programs
  - Fuel Cells for backup power
- Preferential financial terms
Lead by Example