

Founded in 2004

Location: Tullahoma, TN & Murrieta, CA
25 Employees

Advanced Aerospace Systems
Strategic Technology Development
Hydrogen Economy breakthrough
Near Term Space Mining

Milestones

- Revenue >\$3.6M: 2020
- Invested over \$25M in technology R&D to date
- BHL™ Successful Cryocycle/Load Test: April 2018
- SSE™ Successful Static Fire: Feb 2017
- Nautilus™ Technology Set to TRL-6: 2018
- LH₂ Dewar-Cryotank ground test 2020 (enables electric aircraft)
- LH₂ Dewar-Cryotank flight demo 2022
- Developing: Nautilus™ Space Utility Vehicle (SUV) family, Hyperion lunar mining / cargo craft
- Technology Flight Demo (planned): Late 2021
- Nautilus™ Flight Demo (Planned): late 2022
- Hyperion™ Flight Demo (Planned) Mid 2024
- Preparing for first commercial lunar mining mission in 3 to 4 years

Key Customers



Management



Paul Gloyer
CEO



Tim Lewis
VP Biz Dev/Ops



Zachary Taylor
VP Eng.



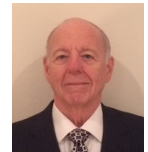
Gary Flandro
Chief Engineer



Eric Jacob
Dir. Engineering



Josh Batterson
Eng. lead

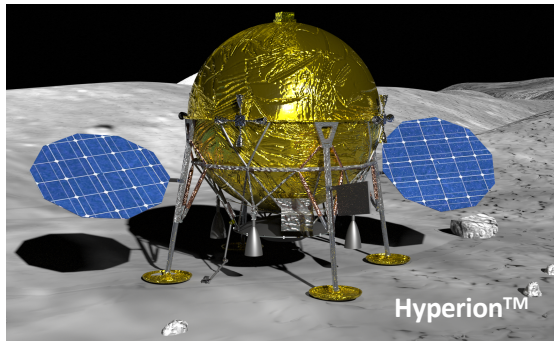


Marshall Heard
Systems Adv.

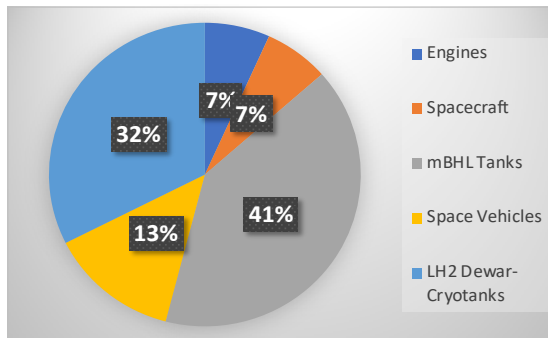
Mission & Vision

Our vision is to become the dominant commercial aerospace company. We accomplish this by developing strategic technology breakthroughs that are transformational and provide the means to profitably develop, operate and deliver commercial aerospace products and services. GTL technologies target critical pain-points in the aerospace industry, enabling 10X improvement in cost, reliability and performance of air and space vehicles.

Our BHL technology provides electric aircraft a 4X increase in range. Nautilus™ SUV offers potential to reduce space launch costs to less than \$100/kg. Hyperion™ can perform Lunar Cryo-Sample Return and/or return lunar samples to support NASA and commercial missions.



Product Mix



Market Position

High (cost)	Low
High (Complexity)	Low
High (Parts Count)	Low
High (Reliability)	Low
High (performance)	Low

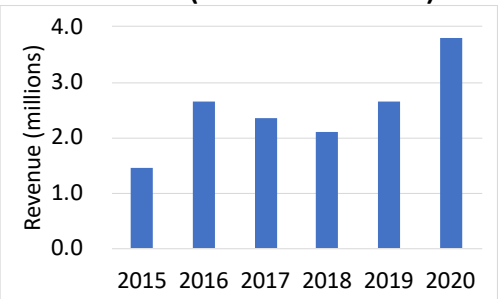
Products and Services

Over the last decade, GTL has developed a suite of game-changing aerospace technologies. GTL is now working to insert those technologies into NASA, DoD and commercial programs, while also using the technologies to develop in-house air and space vehicles.

- BHL™ Cryotanks - Demonstrated 75% mass reduction
- **Electric Aircraft LH₂ Dewar-Cryotank fuel cell (4x range increase; competitive w/jet fuel)**
- mBHL™ Propellant/Pressure tanks
- SSE™ Rocket Engines – Demonstrated robust combustion stability
- Advanced Pressurization– Eliminates turbopumps
- Multiphysics Based Analytical SW Tools (MBA™) – unsteady fluid/structure dynamics simulations
- UCDS™ Propulsion System Design Software
- Optimized LH₂ Dewar-Fuel-Cell Engine (Planned)
- Nautilus™ Space Utility Vehicle (Planned)
- Hyperion™ Spacecraft Systems (Planned)
- Space mined products (planned)



Revenue (2015 - 2020)



Renewable and affordable power with clean air and zero carbon emissions are the promises of the *Hydrogen Economy* that would be achieved from replacing fossil fuels with green hydrogen. While advances in fuel cell technology, electric motors, and renewable energy have brought us closer to this great future, one critical piece has been missing; **efficient hydrogen storage**.

PROBLEM

With traditional hydrogen storage technology, vehicles cannot carry enough low-density hydrogen to be competitive with fossil fuels due to the heavy storage container weight. Even when stored at high pressure or cryogenic temperatures, the weight of the storage container far exceeds the weight of the hydrogen it carries, which cripples the ability of vehicles to utilize green hydrogen and creates a barrier to implementing the *Hydrogen Economy*.

GTL SOLUTION/BREAKTHROUGH

However, GTL's breakthrough **BHL™ technology solves this problem and provides highly weight efficient hydrogen storage, allowing increased range and reduced cost per passenger mile, with zero carbon emissions.** Developed for the space industry, BHL™ has been validated in U.S. Government projects to provide a game changing four times (4X) improvement in tank mass for cryogenic liquids. GTL is currently extending this technology to liquid hydrogen storage by developing vacuum insulated BHL™ cryotanks that can achieve greater than 70% H₂ weight fraction with liquid hydrogen (LH₂) compared to less than 20% H₂ weight fraction with conventional technology.

VALUE PROPOSITION

An aircraft equipped with vacuum insulated BHL™ cryotanks with LH₂ could achieve 2X to 4X greater flight range than with an equivalent weight of fossil fuels and thereby provide over **50% reduction in cost per passenger mile**. This reduction in operating cost will provide a strong economic incentive for aircraft operators to adopt hydrogen technology, thereby achieving global environmental goals of clean air and zero carbon emissions.



BHL™ Cryotank Validated 4X Mass Improvement



BHL™ Vacuum Dewar Cryotank

ABOUT GTL

In business for over 16 years, GTL is an established aerospace company with over \$25M invested in developing and validating transformational technologies. GTL is currently using its validated IP portfolio to develop components and vehicles for the aerospace market. Multiple commercial companies and U.S. Government agencies are presently funding GTL to implement BHL™ technology in cryogenic tanks for aircraft, spacecraft, and launch vehicles.

For more information:

www.GTLcompany.com

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