Helios is a U.S. based hydrogen startup on a mission to solve one of the biggest problems holding hydrogen back: safe, efficient storage and transfer of liquid hydrogen (LH_2) with almost no loss. The company is developing the platform for building cryogenic tanks, fueling systems, and vehicle-scale storage solutions. This is enabled by an internal AI physics engine called Helios 1 that models how hydrogen behaves under pressure, temperature, and with different materials.

Development Roadmap

1. Years 1–2:
    - Build the AI simulation engine to model hydrogen and test materials (Helios 1)
    - Prototype LH_2 tanks and fueling systems
    - Work with DoD, NASA, and Space Force through experimental contracts, and research funding
2. Years 3–5:
    - Start pilot production of tanks and transfer(fueling) systems
    - Deliver prototypes to military and aerospace partners
    - Begin testing vehicle integration
    - Expand the team and refine manufacturing processes with a goal of scaling up for further military and potentially civilian application.

Helios 1 is our foundational model that lets Helios design tanks and fueling systems faster and safer than anyone else could, positioning Helios to be a first mover in this ecosystem.

Why This Matters

Hydrogen has huge potential but loses a lot of energy in storage and transfer. If Helios can deliver vehicular smaller tanks with <0.2% daily boil-off with more cost effective materials and geometries, it could finally make hydrogen practical for a wide array of sectors.

The company is starting small, focusing on high value early adopters such as the military, then scaling as the technology proves itself.

Financial Overview

- Revenue Streams: LH_2 tanks, fueling/transfer systems, experimental contracts, research subsidy funding from government, venture capital.
- Scenario-Based Forecasts: Bull / Base / Bear to show different adoption paths in the Helios financial model.
- Expenses: Mostly R&D in the first two years for AI and prototypes Heavily front loaded.
- Team Growth: From 10 people in Year 1 → 120 by Year 5. For manufacturing expertise and development of industrial automation.
- Key Metrics to look at: Revenue growth, gross margins, cash burn, and break-even timing

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Risks

- Technical: Boil-off, insulation, material failures at more portable scales
- Funding: R&D-heavy early years require venture capital and grants
- Market: Hydrogen adoption could be slower than expected

Helios mitigates these with AI-driven design, government partnerships, and a staged approach that focuses on the highest-value customers first.

Summary

Helios isn't just building tanks. It's building the foundation for a hydrogen-powered future with safer, more efficient, and scalability across land, air, water, and space. Using an AI based physics platform, Helios aims to position itself for rapid development and to be a leader in this space.