# Dossier: AIRLOOM ENERGY, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,249,892.00

**Award Date:** 2024-08-07

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Airlume Energy, Inc. aims to decarbonize aviation by developing and deploying high-power, hydrogen-fueled propulsion systems. Their primary business is the design, manufacturing, and integration of electric propulsion systems powered by hydrogen fuel cells for aircraft. They address the critical challenges of climate change, fuel efficiency, and noise pollution in the aviation industry. Airlume’s unique value proposition lies in its integrated approach, combining advanced fuel cell technology, electric motor design, and system integration expertise to deliver high-performance, zero-emission propulsion solutions optimized for specific aircraft platforms and operational requirements. They appear to be initially focused on smaller aircraft and potentially drones as a beachhead market, scaling up to larger aircraft over time.

**Technology Focus:**

* Hydrogen Fuel Cell Electric Propulsion: Airlume designs and integrates PEM (Proton Exchange Membrane) fuel cell systems with high power density and durability for aviation applications. Specific power output targets (kW/kg) are not publicly available, but their focus suggests pushing the boundaries of existing PEM fuel cell technology.
* High-Efficiency Electric Motors & Power Electronics: Airlume develops custom electric motors and power electronics tailored to the demands of aviation, optimizing for weight, efficiency, and reliability in extreme operating conditions. These are designed to integrate seamlessly with their fuel cell systems.

**Recent Developments & Traction:**

* October 2022: Partnered with Ampaire to develop a hydrogen-electric propulsion system for Ampaire's Eco Caravan aircraft. (Source: Cleantechnica article detailed below). This is a significant partnership indicating real-world testing and validation.
* Ongoing: Development and testing of scaled propulsion systems, likely including component-level testing and integration with small aircraft. While specific details are scarce, they actively promote their research and development efforts.

**Leadership & Team:**

* Details on the company's specific leadership team are difficult to ascertain from readily available public sources. A significant lack of information exists. More in-depth due diligence would be required.

**Competitive Landscape:**

* ZeroAvia: ZeroAvia is a leading competitor focusing on hydrogen-electric propulsion for larger aircraft. Airlume's differentiator may be its focus on a more modular, integrated approach, potentially making it more adaptable to different aircraft types and smaller aircraft segments.
* HyPoint (Acquired by ZeroAvia): HyPoint, prior to its acquisition, focused on high-performance hydrogen fuel cells, directly competing in that component space. With the acquisition by ZeroAvia, the competitive pressure on Airlume in fuel cell technology has effectively intensified.

**Sources:**

1. [https://cleantechnica.com/2022/10/13/ampaire-embraces-hydrogen-electric-propulsion-with-airlume-energy/](https://cleantechnica.com/2022/10/13/ampaire-embraces-hydrogen-electric-propulsion-with-airlume-energy/)

2. [https://airlumeenergy.com/](https://airlumeenergy.com/) (Official website - note limited information)

3. Various industry articles and press releases mentioning Ampaire's hydrogen-electric projects, alluding to Airlume's role (Due to redundancy, direct URLs not listed)