

# Oasis Machines Research Agenda

## Executive Summary

Bingham Labs is launching a \$500,000 crowdfunding initiative in 2026 to begin a long-term research and commercialization program centered on atmospheric water generation and ultra-low-cost electrolysis-based power. The first phase will establish a fully equipped \$100,000 research laboratory in Loveland, Colorado, where engineers and technical staff will develop a 250-500-gallon-per-day Atmospheric Water Generator (AWG) prototype. Although AWG technology is already proven internationally—with commercial systems in Korea and Japan producing up to 200,000 gallons per day—its adoption in the United States has been limited by the high cost of electricity. Bingham Labs intends to solve this barrier by validating a new electrolysis-powered energy system capable of producing hydrogen at a fraction of current grid costs. If successful, this breakthrough would allow AWGs to operate with self-generated electricity, enabling decentralized, affordable water production for agriculture, wildfire mitigation, cities, and industry.

The Oasis Machine is envisioned as the first of six integrated smart-infrastructure systems capable of generating their own power through electrolysis. Atmospheric water is the most urgent application because global water scarcity is accelerating. Only one-seventh of the world's atmospheric water vapor falls as rain or snow, and climate change has disrupted this cycle so severely that hydropower production may drop by as much as 23 percent by mid-century. Groundwater depletion is widespread, from the Ogallala Aquifer to the Colorado River Basin, and millions of acres of farmland are at risk. Bingham Labs proposes a scalable

national solution: a pathway to manufacture 10,000 Oasis Machines capable of producing 1.8 billion gallons of water per year. The model is designed as a public-private partnership, beginning with Colorado and New Mexico and expanding across the western United States.

The funding roadmap includes pursuing a \$3 million EPA grant once demonstration capacity is established. Bingham Labs anticipates eventually selling up to 50 percent ownership to a strategic partner under a Public Benefit Corporation structure, with states holding a 25 percent stake to ensure accountability. The first large-scale deployment concept is a six-state Ogallala Aquifer pilot, where each state would test 2,000 units annually. Revenue would be generated through machine licensing, service packages, manufacturing support, and complementary industries such as carbon capture. Industrial Development Revenue Bonds would finance statewide deployments, while philanthropic models may be piloted in California.

The market outlook is shaped by worsening global water shortages. Farmers face collapsing aquifers, cities struggle with aging infrastructure, and climate-driven heat threatens urban livability. In the United States, more than 160,000 center-pivot sprinklers rely on diesel because many farms lack electricity. The Oasis Machine, generating power at under four cents per kilowatt-hour, offers a cleaner and cheaper alternative. In the Ogallala region alone, over 200,000 irrigation wells are failing, jeopardizing \$30 billion in annual crop production. By decentralizing water generation, Oasis Machines could stabilize agricultural output, reduce diesel dependence, and restore economic resilience across millions of acres.

Cities face parallel challenges. Aging water systems, unsafe tap water, and extreme heat have pushed bottled water consumption to unprecedented levels. An Oasis Machine producing 1,000 gallons per day could support urban cooling, rooftop landscaping, and carbon-credit-generating vegetation. Growth constraints are emerging as well; Phoenix now requires developers to prove a 100-year water supply from non-groundwater sources. With 58 million homes irrigating 32 million acres of grass and 15,500 golf courses competing for water, urban demand is outpacing supply. Oasis Machines offer a decentralized, scalable source of clean water that can support development, cooling, and climate resilience.

Wildfire mitigation represents another major application. Recent fires in Los Angeles caused an estimated \$275 billion in damages. If Oasis Machines were deployed at each rebuilt home—paired with cisterns, sprinklers, and landscaping—the cost could be as low as \$650 per site. At 500 gallons per day, each unit could supply enough water to maintain defensible space, irrigate vegetation, and hose down structures during fire events. In regions where acre-foot water prices exceed \$50,000, the ability to generate half an acre-foot per year from the air becomes economically transformative.

Data centers, among the fastest-growing consumers of electricity and water, represent a future high-volume market. With more than 5,300 facilities worldwide and projections that U.S. data centers will consume up to 15 percent of national electricity by 2030, their cooling demands are immense. A single center may require a million gallons of water per day. Rising water prices could push annual cooling costs from \$3.6 million to more than \$36 million. A scalable Oasis Machine capable of producing 5,000 gallons per day at a cost of roughly \$65,000 even

\$100,000 could help stabilize water supply for data centers, energy producers, cryptocurrency miners, and industrial users specially with looping.

To support deployment, Bingham Labs will build a comprehensive industry database, publish open-source research, partner with engineering firms and ASCE, and establish a dedicated electrolysis research division. Beta testing will occur along the Colorado River, in Denver, and throughout the Rio Grande corridor, including Pueblo communities. Demonstration projects will include urban landscaping along Cherry Creek and the Platte River, wildfire-mitigation prototypes, and a \$100 million revenue-bond-funded “Proof of Concept” infrastructure backbone from downtown Denver to Golden. A banking coalition will study financing strategies for both the 14-mile and 210-mile smart-infrastructure corridors.

The first six months will focus on organizational launch, laboratory setup, Electrolyzer benchmarking, prototype development, public education, and environmental planning. EPA funding will accelerate technologies that reduce greenhouse gases through clean hydrogen, improve wildfire resilience, support drought mitigation, and strengthen collaboration between government, academia, and industry. The Oasis Machine initiative aligns with national priorities in climate resilience, environmental justice, and sustainable infrastructure, positioning Bingham Labs as a catalyst for a new era of decentralized water and energy system.

See [Research Agenda](#)