Oasis Machines Research Agenda

Donor Synopsis 2026 Crowdfunding for Bingham Labs Atmospheric Water Generators. Bingham Labs is launching a $125,000 crowdfunding tour in 2026 to initiate the first phase of a long-term research and commercialization program in Colorado. This phase will establish a $125,000 laboratory in Loveland, lightly furnished and staffed, to begin research on a 500-gallon-per-day Atmospheric Water Generator (AWG) prototype.

AWG technology is already proven globally commercial systems producing up to 200,000 gallons per day are manufactured in Korea and Japan. The barrier to widespread adoption in the United States is not the science; it is the cost of electricity. Current AWGs are too expensive to operate on the U.S. grid, preventing them from becoming a scalable water-supply solution for communities, agriculture, and wildfire mitigation.

This is the problem Bingham Labs intends to improve at scale
The State of The Art uses a Fuel Cell to generate power. Our research will focus on reducing operating costs by using hydrogen engines to generate electricity in place of Fuel Cells. Founder Kent Bingham's earlier work demonstrated that a properly engineered electrolysis system could produce small amounts of hydrogen gas—enough to power a hydrogen engine—and go beyond today's State of the Art using fuel cells at a fraction of the costs. If validated, this approach could allow AWGs to operate with ultra-low-cost electricity, unlocking a new class of decentralized water infrastructure. We will also work with the fuel cell market, in any event, we will model both at huge scale.

Additional 2026 crowdfunding rounds will enables Bingham Labs to:
• Hire technical staff and begin fabrication to validate electrolysis $100,000 •Equip two sites in the Platte Vally for demo of irrigation and sprinklers $50,000 •Produce various sizes of electrolysis prototypes and AWGs $150,000 • data necessary for marketing larger funds thru Convertible Debentures, state partnerships, revenue bond financing, and large-scale deployment feasibility $75,000.

Wildfire Protection

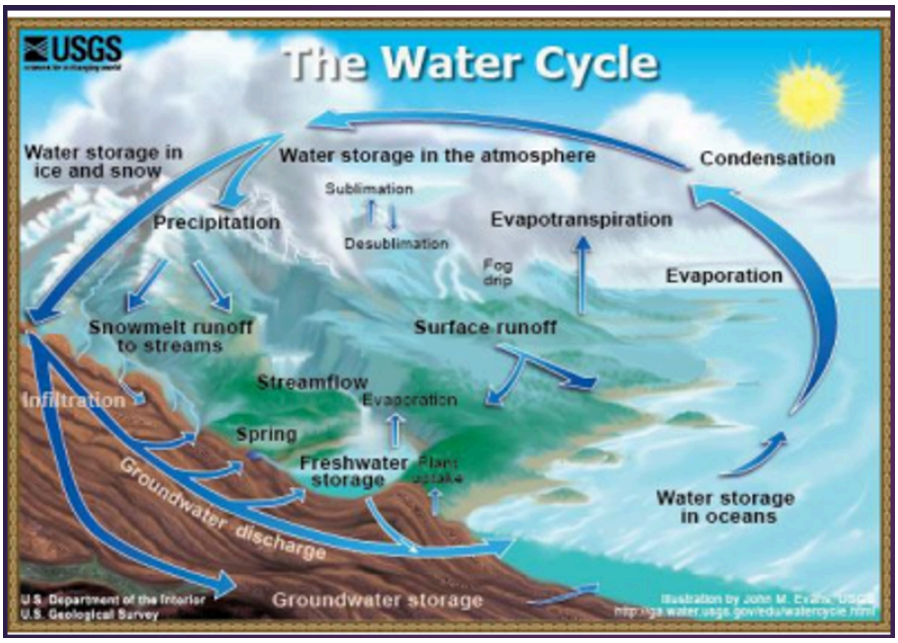

Urban Gardens

Strip Landscaping


Pivot Sprinklers

Oasis Machines offer a scalable, climate-resilient water solution for agriculture, urban infrastructure, and disaster mitigation. With strategic investment, public-private collaboration, and innovative financing, in 2026 to catalyze a national shift toward atmospheric water capture. The opportunity is urgent, the market is vast, and the impact is transformative

There is a cottage industry developing for drinking water derived from Atmospherics Water Generators where a machine captures the water vapor in the air and condenses it into a liquid. There are much bigger uses for water now where the entire earth seems to be drying up from drought and overuse. Then there are wildfires, Data Centers, fracking and manufacturing needs. Only 1/7 of the worlds water vaper falls to the earth as rain or snow to replenish all our ground water in lakes, rivers and aquifers. The need is great. Now Both growth and climate change have used up the existing ground water sources because it is not being replenished. Our overheating planet has created shifts in water availability that could mean a drop as high as 23% in hydropower production by the middle of this century. Bingham Labs illustrates what a research lab can do to incubate $ 1 Billion to build 10,000 machines averaging up to 500 gallons per day or 1.8 billion gallons of water per year. We propose this as a Public Private Partnership with the State of Colorado and want other states to copy. This picture shows the water cycle where only 1/7 of the water vapor falls to earth and is replenished through evaporation. There are an estimated 3.7 million billion gallons of water vapor in earth atmosphere. This is recycled 40 times per year through evaporation powered by the sun.



Ground water users Initial customers are planned to be Federal Agencies and States for large sales in the thousand at a time. For the earliest, we will need to involve them in our research and Beta Testing before arranging any sales. Within 6 or 7 years this market can use millions of Oasis Machines. Gradually agriculture, Military bases, Cities, hospital, transportation, construction, State Authorities, data centers and industrial are added. These sales will be smaller per buyer with more buyers, but harder to reach. Finally, the smallest users like residential. Recreational vehicles, campers and backpackers can be added in with a machine.

Funding Roadmap

Funding & Organizational Strategy Initial Grant Request - Bingham Labs will pursue a $3 million EPA grant once demonstration capacity and staffing are expanded. This grant will be a package of various size grants from (5) $100,000 evaluation and planning grants to $1,000,000 in demonstrations beta-testing, public discussion and finally $500,000 legislation study

Growth and Partnership Model - As the project scales, Bingham Labs anticipates selling up to 50% ownership to a strategic partner capable of contributing management expertise and resources. This partnership will be a Public Benefit Corporation (PBC) Framework. We are studying the creation of state-level Public Benefit Corporations (PBCs) to manage Oasis Machine deployment. Each PBC would be structured with 25% state ownership, ensuring public accountability while enabling private investment.

Our initial focus will be on two western states—Colorado (Colorado River) and New Mexico (Rio Grande River)—with later expansion to California, Arizona, Utah, and Nevada.

Ogallala Aquifer Pilot Program - The first large-scale initiative will involve selling six-state Ogallala Aquifer Oasis packages, with each state testing 2,000 units per year. This program will validate the effectiveness of Oasis Machines in generating the required water volumes for agricultural and municipal use.

Revenue Model - Bingham Labs will generate revenue through:

- A $1,000 license fee per machine.
- Service packages including location planning, manufacturing support, and student courseware development. The PBC model also enables growth of complementary industries:
- Water Vapor Capture
- Carbon Capture, leveraging carbon credits to pay down state-issued bonds.

Financing Strategy - Deployment will be supported by Industrial Development Revenue Bonds, a standard financial instrument for infrastructure projects. These bonds will fund annual machine purchases by participating states. In California, we plan to pilot a philanthropic funding model, while maintaining flexibility to accommodate profit-driven investment through the PBC structure.

Market Outlook - As climate conditions deteriorate, demand for sustainable water solutions is expected to grow significantly. We project the market could expand to 10 times the initial 2,000-unit annual quantities, positioning Oasis Machines as a cornerstone of resilient infrastructure across the western United States. This version frames your plan as credible, scalable, and financially sound, while highlighting innovation and public benefit.

The Global Market Deterioration

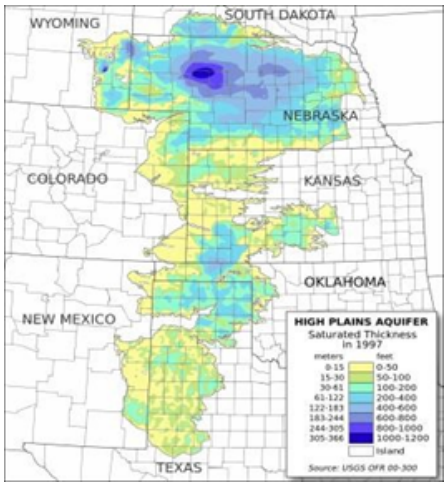
Water is suffering from climate drought conditions and overuse worldwide. Starting with farmers there is a great need for water as their rivers and aquifers are drying up. The Ogalala Aquifer is the greatest concentration of center pivot sprinklers in America as shown here

Hoover Dam and Lake Meade Down 70%
Water shortage at Hoover Dam is causing concern. 40 million People Rely on the Colorado River, and Now It's Drying Up

California Farming and land is sinking.

United Nations report on world Water problems
One estimate suggested rainfall has been down by more than 74% as a result of deforestation. This is due to the vital role mature trees play in drawing water up from the ground and transpiring it as vapor into the atmosphere. Mature trees allow soil to absorb more water, which can otherwise run off the surface in flood conditions. Fewer trees mean less water in the soil to sustain vegetation, including food for wildlife. This disappearance of trees also means a decline in biodiversity.

Ogalla Aquifer Dakotas to Texas Running Dry
Many farms are closing because they hear a great sucking sound now like the sound you get from a straw when the soda is gone.



Other links to stories

Iran's $100 billion Quandary
Climate Scenarios if we don't do enough

Rio Grande River Running dry.
Mexico City is already experiencing debilitating shortage of water so bad the city is sinking.

China's Yangtze China's beating heart
YouTube Video

Recent News Articles on Worldwide Water Shortages

* 750 Million at Risk: New Study Warns Extreme Water Scarcity Is Closer Than We Think: Climate simulations predict rapid rise in severe water shortages affecting hundreds of millions globally.

* 36 Global Innovations Shortlisted to Transform Water Sector: Innovations in water treatment and management aim to address global water scarcity challenges.

* Violent conflict over water hit a record last year: Record number of violent incidents related to water shortages and conflicts worldwide in 2024.

* Water wars: Flashpoints identified in Africa, Asia and the Middle East: Analysis of geopolitical tensions and potential conflicts over water resources in key regions.

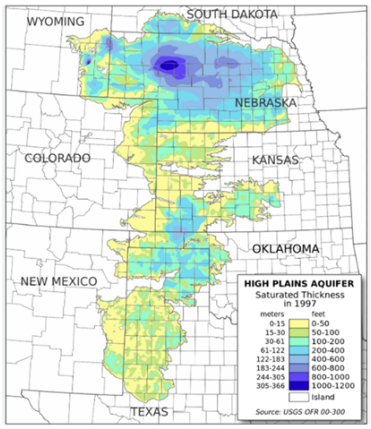
* Global water crisis is threatening world peace and prompting calls for change: UNESCO report: UNESCO highlights the link between water scarcity and social stability risks worldwide.

* New Study: 21 Global Water Scarcity Hotspots Identified, Classified into 7 Hotspot Clusters: Research identifies major global hotspots of water scarcity and their common drivers.

* The global threat of water scarcity: Report on the social, environmental, and economic impacts of drought and water scarcity worldwide.

* Water crises threaten world peace (report) - UNESCO: UNESCO report on how water scarcity exacerbates conflicts and the importance of cooperation.

US Water problems



Agriculture Current Landscape - The United States relies on more than 160,000 center pivot sprinklers to irrigate its farmland. These systems, while historically effective, are increasingly unsustainable. Many central pivot farms lack access to electricity and instead depend on diesel fuel to power pumps—raising costs and contributing to greenhouse gas emissions. The Oasis Machine offers a transformative alternative. By generating its own electricity at an estimated cost of under 4 cents per kilowatt-hour, it provides farmers with a cheaper, cleaner, and more resilient irrigation solution for about $50,000 to water 90 acres.

There are over 160,000 center pivot sprinklers in America. The Oasis Machine can improve farmers' irrigation in several ways. It is cheaper to operate because central pivot farms don't have electricity, so they use Diesel gas to run their pumps. The Oasis Machine generates its own electricity, estimated at under 4 cents per KW hour. The area is about 25% developed but was expected to become the breadbasket to the world if this development

continued. Here is something that could replace the diesel pivot sprinklers. It could fill up from our Oasis Machines.

Case Study - The Ogalala Aquifer is the greatest concentration of center pivot sprinklers in America with over 200,000 irrigation wells. Many farms are closing because they hear a great sucking sound now like the sound you get from a straw when the soda is gone. This is the breadbasket of America generating over $30 billion of crop sales to world markets. The image below shows a 500 gallon per day Oasis Machine with a 500-gallon tank for center pivot sprinklers capable of watering 90 acres every two days.

The Ogallala Aquifer Impact Opportunity for Transformation

* Cost Savings: Reduced reliance on diesel fuel and lower electricity costs.
* Climate Resilience: Sustainable water generation independent of groundwater depletion.
* Economic Stability: Preservation of $30 billion in crop sales and protection of global supply.
* Scalability: Potential to expand across millions of acres, revitalizing Americas breadbasket

Conclusion - The Oasis Machine represents a critical innovation for agriculture. By decentralizing water generation, it ensures that America's farms remain productive, resilient, and globally competitive in the face of climate change and resource scarcity.

Other users

Cities - Current Challenges. Across America, 275 cities with populations over 100,000 face mounting water crises. Aging infrastructure—ranging from rusted clay pipes to corroded copper systems—delivers water that is often unsafe. The rise of bottled water

consumption underscores the severity of this issue; what was once unthinkable fifty years ago has become a multibillion-dollar necessity.

Oasis Machines as a Solution - An acre-foot of water, equivalent to 1,000 gallons per day, produced by an Oasis Machine can support urban cooling strategies by enabling the planting of trees and bushes even on roofs. This new landscaping not only mitigates extreme heat but also absorbs carbon dioxide, creating opportunities for landlord even cities to earn carbon credits.

Platted Lots Sold Without Sources of Water -At the time of sale, well water was assumed to be the answer. But as drought has dried up ground water, most counties have placed restrictions on development. In Colorado alone there are over 75,000 such plated lots.

Climate Crisis and Urban Risks - Climate projections warn that southern cities may become unbearably hot, threatening livability. Cities such as Houston, Los Angeles, and Denver have already discovered hundreds of large buildings and bridges at risk of sinking due to shifting ground conditions. Oasis Machines can stabilize urban environments by ensuring reliable water supplies for cooling, landscaping, and infrastructure resilience.

Policy and Growth Constraints - Cities are struggling to supply enough water to support growth. In Phoenix, the governor recently announced that developers must demonstrate an assured water supply for 100 years from sources other than local groundwater. This policy highlights the urgent need for alternative water solutions and limits new homebuilding until such solutions are found.

Competing Demands - Urban water demand is compounded by competing uses: 58 million homes covering 32 million acres of grass, 15,500 golf courses nationwide, each requiring substantial irrigation. As water scarcity intensifies, prices will rise, increasing competition among residential, recreational, and commercial users.

Impact - Oasis Machines can: Provide clean, decentralized water supplies for cities, Reduce reliance on unsafe, aging infrastructure, Enable urban cooling and carbon credit generation through expanded landscaping. Support sustainable growth by meeting assured water supply requirements. By addressing these challenges, Oasis Machines position cities to thrive in the face of climate change, infrastructure risks, and escalating water demand.

Wildfires

Wildfire Mitigation: The recent wildfires in Los Angles are said to have caused $275 Billion in damages. They could use revenue bonds to fund the installation for thousands of these machines. If the cost of the machines would be around $5,000 each, then they should produce 500 gallons er day. About 7,500 homes were destroyed. If Oasis machines were used at each site plus cisterns, irrigation hoses, sprinklers and installation, the cost could be as low as $650 per site. These could wrap sprinklers around the houses and grow lush landscaping in addition to hosing down the house during wildfires.

https://binghamlabs.com/video/oasismachine001.mp4

If the city and insurance demanded it, as a condition for community rebuilding, it should fireproof northern Los Angeles. These bonds could be paid off over 30 years through property taxes. This would mean that the water wouldn't be a burden to homeowners or the city and could be a requirement to rebuild. It should be easy to get Oasis Machines to pull 500 gallons of water per day from the air at an average 30% humidity. This would provide 182,000 gallons per year per machine. One acre foot equals 325,850 gallons. So, one machine could provide about 1/2-acre feet for developers. For example, the City of Greeley requires residential developers to buy water and donate it to the city or pay $58,000 per acre foot. The vast majority schematic in other states, such as California, Nevada, New Mexico and Washington, don’t have this feeding frenzy yet and sales are occurring at much lower prices to farmers more like $500 to $1,000 per a/c foot

historically. But with everything drying up everywhere, water is going to become expensive just to serve historical demand. Growth will need even more water and electricity as shown above. Existing utilities are slow to respond and must consider their current customer base where the Oasis Machine is quicker to respond and only needs to consider the new customer.

Bottled Water- The USA market consists of some 15 billion gallons per day with over 60% coming from municipal water systems. Today's retail user prices range from $1.50 to $2.50 per gallon. A recent study found 240,000 detectable plastic fragments in one litter bottles of water with concentrations 10 to 100 times more than previously estimated. If this becomes known as the state of the bottled water industry, new sources like the Oasis Machine would grow in demand. Bottled water manufacturers could become a new market for the Oasis Machine. What happens when water becomes more valuable? This could be a huge factor. This is a scalable formula so the cost per gallon can

Data Centers - The Challenge: Data Centers as Critical Resource for Consumers. Data centers are rapidly becoming the largest consumers of both electricity and water in the United States. Their demand is so significant that our research lab must design, and prototype larger-scale systems specifically tailored to meet their needs. Current project estimates that within three years, data centers will account for approximately 12% of the nation's total electricity consumption.

Water usage is equally pressing. In 2015, total U.S. water consumption reached 1,218 billion liters per day. Of this:

- 503 billion liters supported thermoelectric power generation,
- 446 billion liters were used for irrigation, and
- 147 billion liters per day supplied potable water to 87% of the U.S. population.

Cooling requirements for data centers place them squarely within this high-demand ecosystem. With more than 5,300 data centers worldwide, their operations—ranging from search engines and streaming services to financial transactions and enterprise computing—already consume the equivalent output of 100 nuclear power plants. By 2030, with the added demands of artificial intelligence, virtual reality, and advanced computing, data centers are projected to require up to 15% of the nation's electricity.

The Financial and Consumer Impact - Cooling infrastructure alone requires tremendous water volumes. A single facility consuming 1 million gallons per day equates to 365 million gallons annually. At a conservative cost of $0.01 per gallon, this represents $3.65

million per year. If water prices rise to $0.10 per gallon, the annual cost escalates to $36.5 million—costs ultimately passed on to consumers through higher internet, cable, and cloud service bills.

The Market Context: Data Center REITs - Real Estate Investment Trusts (REITs) play a pivotal role in this sector. By law, REITs must distribute at least 90% of taxable income to shareholders, making them attractive to investors. Data center REITs, however, differ from traditional landlords: they operate at the intersection of real estate and technology infrastructure, leasing facilities to hyperscale providers such as Amazon Web Services and Microsoft Azure, as well as enterprises requiring wholesale colocation. This unique positioning underscores the scale and urgency of addressing resource efficiency in data center operations.

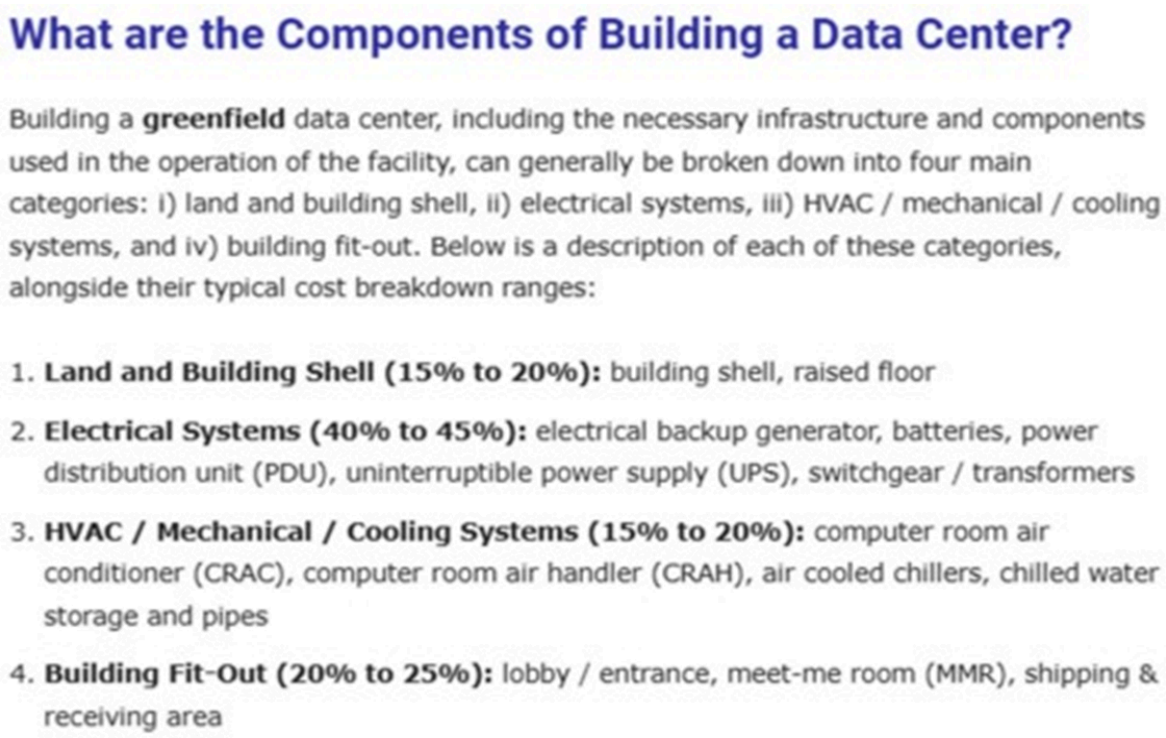
The Oasis Machine: A Scalable Solution - Our proposed Oasis Machine offers a conceptual model for sustainable water management. A unit capable of processing 5,000 gallons per day costs approximately $65,000. While this example does not account for minimal maintenance or inflation adjustments, it demonstrates the potential for scalable deployment across high-volume users—including municipalities, energy producers, cryptocurrency miners, military installations, developers, and manufacturers.

By innovating at the intersection of infrastructure, technology, and sustainability, this project positions itself as a transformative solution to one of the challenges of the digital age: ensuring that the growth of data centers does not compromise national water and energy security.

Transportation

There is a huge market in showing how electrolysis can be used for transit,

driverless delivery, the 166 million vehicle truck market and the American car market. We intend to demonstration our elctroizer in Skyways backbone to power out linear induction motors and the vehicle itself.



What are the Components of Building a Data Center?

Building a **greenfield** data center, including the necessary infrastructure and components used in the operation of the facility, can generally be broken down into four main categories: i) land and building shell, ii) electrical systems, iii) HVAC / mechanical / cooling systems, and iv) building fit-out. Below is a description of each of these categories, alongside their typical cost breakdown ranges:

1. **Land and Building Shell (15% to 20%):** building shell, raised floor
2. **Electrical Systems (40% to 45%):** electrical backup generator, batteries, power distribution unit (PDU), uninterruptible power supply (UPS), switchgear / transformers
3. **HVAC / Mechanical / Cooling Systems (15% to 20%):** computer room air conditioner (CRAC), computer room air handler (CRAH), air cooled chillers, chilled water storage and pipes
4. **Building Fit-Out (20% to 25%):** lobby / entrance, meet-me room (MMR), shipping & receiving area

Launch Strategy - starting with a $500,000 crowdfunding for the successful deployment of two demonstration units. Then Bingham Labs will pursue a $3 million EPA grant and the expansion of staff supported by the initial request. While specific uses of funds may evolve as the initial allocation is spent, the following strategic initiatives outline our launch plan:

1. Industry Benchmarking

- Develop a comprehensive database of water generator companies (e.g.) Aquaria, Oxydus, Triton, Kara Water, Water Cube, Watergen.
- Track cost vs. performance across product sizes, funding status, sales management teams, geographic location, and other relevant metrics.

2. Knowledge Dissemination

- Publish findings on the Bingham Labs website.
- Distribute a formal report to western states to inform regional water and infrastructure planning they can watch the research and development for free until they are ready to market their own.

3. Engineering Partnerships

- Engage a leading engineering firm to evaluate long-term applications of water generation technology and cost-reduction pathways.
- Explore collaboration with the American Society of Civil Engineers (ASCE) to formalize involvement through funded partnerships.

4. Electrolysis Research Division

- Establish a dedicated division to advance electrolysis applications.
- Investigate integration with existing fuel cell technology to enhance hydrogen engine efficiency and reduce electricity costs.

5. Open-Source Research Publication

Publish research outcomes and make findings openly available to states, ensuring transparency and broad adoption potential.

6. Manufacturing Competitions

- Propose state-level competitions to encourage localized manufacturing of water generation technology.
- In New Mexico, invite the Bureau of Indian Affairs to establish a manufacturing and maintenance training program for Pueblos along the Rio Grande River. The Oasis machine will provide residential small crop farms on Indian reservations

7. Beta Testing Models

- Allocate approximately $1 million to establish beta testing models for:
- The Colorado River
- The City of Denver
- The Rio Grande River and Pueblos

8. Demonstration Projects - Participate in urban revitalization initiatives, including landscaping projects along Cherry Creek and the Platte River in downtown Denver. Hire Botanic Gardens to plan the Platte Vallet Gardens.

9. Hire a company to write a plan for new courseware at Community College training in the staff needed for garners, electrician, pipe fitter, maintenance, transport, and sanitation.

10. Additional Factors

To scale "The Oasis Machine" from a 25-liter prototype to a 500-gallon-per-day (GPD) industrial-strength utility, the math shifts from hobbyist levels to serious infrastructure.

Producing 500 gallons of water from air is an energy-intensive feat. Here is the breakdown of the physics, the power requirements, and the scale of the "perpetual" hydrogen loop

Wildfire Mitigation Models Develop wildfire mitigation prototypes for the State of Colorado to evaluate and adopt.

9. Revenue Bond Funding Model

- Design a $100 million funding framework for Legs 1-2, financed through convertible debentures and revenue bonds.
- Apply this model to the 14-mile “Proof of Concept” backbone from downtown Denver to Golden, as outlined on our website.

10. Banking Coalition Engagement

- Invite major banks to form a coalition to study financing strategies for the $100 million-initiative.
- Extend coalition research to explore funding for the proposed 210-mile smart infrastructure backbone detailed on our website.

11. Ask the City to Joint Venture a Gardner and electrical training programs and include the homeless. Grant monies from several sources will be invited to grow the training program and trade housing rental for gardening labor.

Milestones & Deliverables (First Six Months)

Milestone 1 — Organizational Launch
Get Core team under Contracted, established a Laboratory and get an office operational, Research library framework established,

Milestone 2 — Technical Baseline
Electrolyzer units acquired and benchmarked, Fuel-cell systems evaluated, Initial engineering prototypes underway, building a podcast studio at

Milestone 3 — Public Engagement & Education
Launch of weekly environmental podcast, Release of hydrogen and wildfire-mitigation educational modules, Public-facing website and outreach materials deployed

Milestone 4 — Planning & Modeling
Initial environmental planning maps: Wildfire-mitigation modeling, Hydrogen-station and guideway conceptual layouts, Organizational Capacity, through podcast Bingham Labs brings together expertise

Hydrogen and electrolysis engineering, Wildfire-mitigation systems, Environmental planning and infrastructure modeling, AI-enabled research and public communication, Grant development and federal partnerships.

The team includes experienced engineers, planners, researchers, and outreach specialists with a track record of delivering complex, multi-stakeholder environmental projects.

Public Benefit & Environmental Impact

EPA funding will accelerate technologies and public-education tools that: Reduce greenhouse-gas emissions through clean hydrogen, Improve wildfire resilience across the Western U.S., Support water recovery and drought mitigation, Enhance community understanding of climate-tech solutions, Strengthen collaboration between government,

academia, and industry. The project directly supports EPA priorities in air quality, climate resilience, environmental justice, and community engagement.