

**“The number one tool the U.S. has to speed the energy transition around the world is Innovation”**



## Smart Tech Research Labs \$5 Million

This Joint Venture is to build a Smart Tech Lab that will focus on electrolysis and AI. All the applications on this web site are from using electrolysis and with different sizes of hydrogen engines. The initial project will be an Oasis Machine with a goal of 3,000 gallons of water per day plus generating our own electricity to do it. Then there is a smart grid application, fiber optics application and a carbon capture application. Hopefully each of these applications will attract additional funding. From there we can develop these applications into utilities as shown in step five. These accompany Transport infrastructure that shows how transportation can replace fuel cells with cheaper electrolysis generated electricity.

**The Business**-was gifted electrolysis research done by Disney's retired Chief of engineering for EPCOT Kent Bingham, who died suddenly, and we inherited his work as his business manager. The lab will be located at a Business Accelerator near Denver that offers Space, collaboration



with other tenants. The main activity will be to generate hydrogen and configure it to a variety of Hydrogen engine sizes. One of our team built and knows that technology. So, the main formula is to connect the Hydrogen to various sizes Electrolyzers and configurations, then measure performances and costs. When we have an operational Oasis model, we will turn our attention to capturing CO2 with the same technology and a goal of 1000 tonnes per year. Both machines can go anywhere, especially operate in the wilderness.

In Memorial, the old team: Kent Bingham, Byron Johnson, Bill Rourke, Cliff Dolan, Bob Hamilton, Norm McIntosh.

**Business Model** Bingham Labs will start up as an LLC Joint Venture with a capital providers getting 50% ownership and getting repaid before the management team shares their share of the profits. The first \$1,000,000 needed to launch the company will be allocated to operating a multi-faceted company including administration, office, overhead, fund raising and reserves. Then it will be \$1 Million per each six months or a second round will be for \$4 million for the remaining 40%. One option for the capital investor is how to structure each research venture of the company for spinoffs, and profits. For example, should each research project be a separate entity such as a Special Project Vehicle (SPV) or something equivalent so that the remainder of the company is protected from any loses and future investors choose only the technology they are interested in. This would also give the company a way to expand. Or should everything be lumped together into one company? With all our opportunities, our longer-term goal is to start a fund.

**Seed Capital** The first funding round seeks \$1,000,000 in working capital for 10% of the company. This is expected to organize a startup company over the first six months with these activities:

\$230,000. The initial action will be to sign the core team to 3-year contracts. The first will be the lab director in charge of all technology, Don Deptowicz. Daren Dozier will be the manager of Information Technology (IT) and general marketing. Ed Ryan will oversee sales to real estate groups and Lloyd Goff will handle the larger sales to government, agencies and tech companies. Eyoub Kahn will contract for Director of Planning, Herman Colato will build and manage a library of 1000 +links to Published information by others. Detailed job descriptions, compensations and bios can be found on starting on page 4. As funds allow, we will add a grants maker, office secretary, and researchers. Upon startup we will apply for matching funds with \$1,000,000 in crowd funding. A small 1,500 sf business office will be in downtown Denver in one of the nearly empty office towers. We will purchase two maybe three existing units from developers already in the market with 500 gallons per day and \$3,000 gallons pe day. This will include purchasing two Electrolyzers and replacing the fuel cells these units currently used. We may hire this [company](#) to build us a working model when we have the parts we want. We will probably use a [new Lab Software](#) to assist in the operations.

\$70,000 will be allocated to furniture, fixtures and equipment for both the lab space and the office space we have found at a business incubator in Loveland, CO. A detailed description is on page 14. This will contain a Deptowicz desk, with a 6-seat conference table attached, a demonstrations space at two other desks, a large screen TV on wheels and podcast area, with a couch and cameras overhead and a room-length working counter, with storage above. The layout sketch is on page 14. It will operate as a podcast studio with working demos.

\$50,000 for Outreach to stage events and conferences, print materials and work on the web site. We will purchase \$2,000 of courseware for explaining hydrogen and try to make a deal for Marketing these 9 courses as a part of our educating future customers by teaching hydrogen tech such as Electrolysis. This will be simultaneous with raising the next stage of funding for \$5 million.

\$90,000 Set Up AI presenters to add narration to our slideshows. We will use this tool to start a Public Debate on Social media and ask the State of Colorado to respond.



Narration: [Solar Oasis - Fire Mitigation Solutions](#)



Narration: [I-70 Corridor Narration Bob.mp4](#)

\$ 60,000 for AI animations of stations, wildfire mitigation and how Data Centers work. These are to be included in the Interactive map and slideshows. An example here.



THE DIRECTION OF OUR RESEARCH FOR WILDFIRES

**SOLAR OASIS**

A \$10,000 site cost including an Oasis Machine, a water cistern, sprinklers, underground hoses and installation could be amortized in the property taxes very cheap, maybe \$650 per year. On top of that there will be revenues from selling \$500 of water per month. This would grow a profit surplus, and over 30 years this will grow huge.

To animate click: <https://apparent-technologies.com/FMS4.mp4>

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\$100,000 podcasts weekly with parts of the courseware to be included in our podcasts. The Podcasts are intended to build an audience of public awareness and future partners.

\$100,000 for the new Director of Planning, Eyoub Kahn who will expand Skyways illustrations showing actual guideways, transitions to ramps, station locations, plus maintenance and storage yards for each leg. <https://www.condzngroup.com/>

\$75,000 to start up the library and put it on its own server in the lab area. These funds will be supplemented with grants and crowd funding and perhaps a financial partner. Files will be transferred to a new Bingham Labs file on the cloud and sorted for queries in date, topic, author and location. Eventually we plan a subscription service that will bring revenue into the company, until then we will offer beta testing for free.

\$100,000 is allocated for marketing to raise \$5,000,000 investment capital. We will purchase 10,000 email address in the States west of the Mississippi, broken into 12 categories: Farmers, mayors, state legislatures, data centers developers, Silicon Valley, crypto companies, water agencies, vehicle manufacturers, venture capital, oil industry and Hollywood. We have found many large grants with some of them up to \$100 million for Climate Tech and one year to submit. They are from the SBIR, NSF, DOE, Cities, private foundations etc. They will require that we enlist the collaboration of Universities, Federal Labs, private corporations and national experts. This also includes seeking grant funds from State and federal agencies such as the Colorado Economic Development Agency for \$250,000, and \$250,000 from the Federal Agencies like Dept of Energy, National Science Foundation. See details on page 27. The objective of the \$5 million is to grow a company capable of incubating the multi-Billion-dollar Skyways Colorado Corridor. This could include an IPO or sale within 3 years. Another dilution for 50% of the company is also possible. How these new funds will be used is yet to be determined, but this is the time to take for the seed investor to take some profit.

Expansion Capital allocate \$75,000 to market once the business is settled in:

\$3 mil Evaluation Grants to government and Foundations.

\$1 Mil Public Discussion sponsors

\$50,000 allocated for Crowdfunding

## **Why Hasn't Small Scale Electrolysis Taken off**

Answer from ChatGPT

Small-scale electrolysis, like using Electrolyzers to produce hydrogen from water on a smaller scale, hasn't become widespread for several reasons:

## 1. using the Oli model of centralized processing and then needing to transport the hydrogen to locations where it can be purchased.

- **This has High upfront costs:** Small-scale Electrolyzers need to use the hydrogen as it is produced and immediately used by hydrogen engines to become cost effective
- **Specialized components:** Electrolyzers often require rare or expensive materials (e.g., platinum or iridium catalysts), adding to the cost.

## 2. Lack of applications:

For small-scale hydrogen production to thrive, there needs to be a robust network of hydrogen-consuming applications like fuel cell vehicles or small fuel cell systems for homes.

## 3. Competition from Batteries

- **Advances in battery technology:** Batteries have become the go-to solution for small-scale energy storage because they are more efficient and easier to integrate into existing systems like solar panels or electric vehicles.
- **Better energy density:** Lithium-ion and other modern battery chemistries are more energy-dense than hydrogen systems in most practical applications.

## 4. Market and Economic Factors

- **Lack of incentives:** Governments and markets have traditionally focused more on large-scale hydrogen production or other green energy solutions like solar, wind, or batteries. Small-scale electrolysis hasn't received the same level of subsidies or investment.
- **Uncertain demand:** Until there's a clear market demand for hydrogen at a small scale (e.g., for home energy storage or small vehicles), companies are less likely to develop consumer-grade systems.

## 5. Perception and Awareness

- **Low public knowledge:** Many people aren't aware of small-scale electrolysis or its potential applications, which limits grassroots demand.
- **Risk perception:** Hydrogen is associated with safety risks (e.g., flammability and explosions), which can deter adoption.

## What Could Change This?

1. **Lower Costs:** Advances in materials science, like non-precious metal catalysts, could reduce the price of small-scale Electrolyzers.
2. **Renewable Energy Synergies:** Small-scale electrolysis could pair well with distributed renewable energy sources like home solar panels.
3. **Improved Efficiency:** Technological breakthroughs could make electrolysis more energy-efficient and practical.
4. **Policy Support:** Government incentives for decentralized hydrogen production could stimulate development and adoption.
5. **Emerging Applications:** Growth in fuel cell vehicles, portable power, or off-grid energy systems could drive demand for small-scale electrolysis.

**Bingham Labs LLC will focus on Electrolysis and Ai R&D.** Starting with 5 smart infrastructures presented here, all of the above problems will be addressed. Hydrogen, the only near-zero emission form, requires so much energy to produce that its resulting energy

inefficiency is its greatest weakness. We think electrolysis will soon be ready for a national test to determine its feasibility and effectiveness. Electrolysis means machines that can be moved. One basic configuration is of Electrolysis providing the hydrogen to a engines that generate electricity. This is the main power source behind all 6 Smart Infrastructures we are introducing. The six smart infrastructures are: Unlimited water, Universal Mind, Smart-Grid, Carbon Capture, Skyways passengers and automated shipping So far, the Federal Government and Industry have chosen Fuel Cells as the technology of choice. Both technologies can be significantly improved enough to stimulate the age of hydrogen. We want to find the leading edge, so we will survey the State of The Art through research in AI.

**Customers** - Our initial market was Water Agencies, now we think States should be the main partner and regulate other water markets like Data Centers, Bitcoin and crypto companies. Our mission is to fund Millions of dollars to States and agencies to deploy enough Water capture Machines to establish a new water Industry. If we can get an experimental Oasis Machine to generate 1000 gallons (min) per day that would mean one acre per year. These could be used for Beta Testing by the water agencies and insurance industry for wildfires. At \$5,000 per machine, It would cost well over \$150 Million to deploy 15,000 Oasis Machines. And remember new technologies get better with time so a 5-acre foot machine is already being marketed as shown in comparable on page 27. The main point is this technology has big upside. These types of amounts could be funded as industrial development bonds each year to blanket the countryside where water is needed. How big is the market? The hydrogen market is hot with multi \$Trillion potential. Wall St is growing thirsty for vanishing water in the west. A Report also shows alarming changes for global water. The warming planet is causing havoc under the strain from record heat, floods, storms and wildfires: the toll will get worse. The need will grow.

**Progress to date:** \* Bingham's research on electrolysis, \* Research of markets as shown here \*Built a hydrogen engine \*Found an Incubator to join that has a podcast stage \*Organized a small team \* started a Library with 1000 links. \* Collected company links we wish to do business with. Found grants up to \$100 million we wish to organize a team and submit application. We have 5 more business plans for transportation, a Brain Trust, a builder consortium and a \$10 billion National Experiment all based on this electrolysis research. See [www.lloydgoff.com](http://www.lloydgoff.com). We have begun marketing Bingham Labs and applied for a \$3 Million grant to the Congressional Transit and Infrastructure committee. We have submitted introductions and requests to Colorado's two senators and House representatives from District 1,2 and 7. We have applied to the City of Denver to co-sponsor the \$3 million application to the T&I committee. We have prepared a partnership proposal to the State of Colorado offering 50% ownership for their

collaboration. We have established contact with our two senators, Mayor of Denver, Governor and the 3 congressional districts involves. We have crafted an economic model that shows how revenue bonds can fund the National Experiment without any government obligations. We have learned how to craft AI presenters. We intend to use this for public debate on social media.

### **Services we can offer to start cash flow.**

Every business needs cashflow to eventually replace the investment capital. Here is a model of services we intend to offer starting with Education and News buttons as shown in this graphic. Then we will expand into a research library and make our 1000 + links available for inquiries. Our biggest cash flow opportunity lies in selling an [Ai personal Assistant](#) to millions of users.

Talk to

## Quincy — Dashboard of Operations Over 210-Mile Corridor



### **Research To Focus on Prototypes Powered by Electrolysis and Operated by AI.**

Water, Smart-grid, AI factories and Carbon Capture are the initial projects of this R&D Venture: Water is our greatest and most valuable resource that we could not live without. Water all over the world is becoming more difficult for 2 billion people to get in undeveloped countries, refugee camps, the western USA and desert countries. Its scarcity is causing the value to go up and if not corrected here are some forecasts of how inflation will affect it:

3% per year just to keep from getting worse. Over 30 years is 2.5 times more

5% p/y emergency actions for recovery to stabilize all existing user's supply. Over 30 years this is about 5 times more in cost.

7% per year needed to accommodate all the new growth that depends on water. Over 30 years this is 7 times more

Remember various users have different values for water. Farmers are probably the lowest and data centers are probably the highest.

**Our Solutions:** An Oasis Machine requires a critical part; an Electrolyzer is needed to generate both power and water inexpensively. Our goal will be to generate 1 to 2 KW and/or thousands of gallons per day of water in our first machines. Electricity from the grid is too expensive to operate this machine so it is necessary to generate our own electricity off the grid using an Electrolyzer. We think we can lower the operating costs.

Each of these technologies will have a generating capacity that also needs transport:

Unlimited Water, AI Factories, Carbon Capture, Smart Grid

**Methodology Template:** The first project will be to form a company and get a team built for research, for administration and marketing. This work will start in the initial \$500,000. The company will have three or more projects over the first two years that will share a three-step methodology: 1. Survey the existing research industry in each field and create a database of people and technology. 2. Purchase an AI capability and feed all this info into it and start asking AI questions that lead to an engineering solutions 3. Choose two or three companies to consult and assist with a demonstration model. As the research progresses beyond demonstrations, it will be exposed to additional capital.

Engineering into a manufacturable machine will occur late in the first year. In this plan there are three research ventures that can contribute to the Climate Crisis. All that contribute will have access to share in the data the project generates until additional funding is added. More Climate Tech research projects can be added using the Special Project Vehicle funding arrangement as more investors are found. We also plan to Compete for prize money - Elon Musk is offering \$100 million for the winner(s) of the best new carbon capture base on 3 conditions. There are others offering smaller prizes like foundations, and associations. We plan to also go after State grants and federal funding. The Federal bill passed last August will enhance Climate Tech with Billions.

**Management:** The Research Lab will be managed by Don Deptowicz, (970) 532-4736 who has an extensive background in technology projects. Don Deptowicz is a Results Oriented Senior Executive with an outstanding track record in engineering, programming management and quality. He excels at being an inspirational and resourceful leader. He is known for innovative and creative thinking in the areas of both product and process designs involving advanced materials and coatings. He is an exceptionally skilled communicator, with the ability to build effective and productive working relationships across all levels of the organization and the value chain. Don graduated from Purdue University and began his career in 1976 at UTC's Pratt &



Whitney Engine Division in West Palm Beach, Florida. Here, he led fundamental changes in both product and manufacturing process technology, covering the full life cycle of Military Aerospace Propulsion Systems. Don has over 46 years of experience in the aerospace, automotive and electronic industries. Prior to this, he was the Director of Technical Excellence for PCC Airfoils LLC, where he championed the collaborative effort across engine OEMs and casting suppliers in conjunction with the Air Force Man Tech vision of Attaining newer Agile Manufacturing.



**Lloyd Goff** -has more than 54 years putting projects together for Real Estate development and some Technology for more than 54 years. Educated in Architecture at the University of New Mexico and graduating in 1965. He was the University of Colorado's first Graduate for a 1971 master's degree in urban and Regional Planning. A design portfolio of more than 40 projects is available in his on-line Bio at [www.lloydgoff.com](http://www.lloydgoff.com). Goff met Kent Bingham in 1995 and for over twenty years they collaborated on Skyways, the Oasis Machine and Pedestrian Villages until his passing in 2018. Goff was Kent's Business manager and will be responsible for the business affairs of the company included investors, accounting, legal, staffing and marketing.



**Daren Dozier** is a computer information Technology Specialist. He builds web sites, works social media, and manages companies' computer networks. The Tech Industry has been his career path for over twenty years. He will be managing the marketing of the company for communication with investors and customers. His company: [Apparent-Technologies.com](http://Apparent-Technologies.com) . is deep into AI. See [List of Animations](#)



**Ed Ryan** is a developer, a realtor who has worked with Goff for 50 years in Denver. He has spent years configuring an ingenious system of building a portable housing structure that can be delivered by pickup truck and assembled or disassemble in one day. His interest are in villages, water and landscaping.



Eyoub Khan will be the director of Planning for the 14 Mile “Proof-of-Concept” corridor”. He graduated with honors in Industrial Design, specializing in Transportation Systems, and has an MBA from West Coast University. Eyoub has worked in Architecture and Industrial Design, collaborating with major clients such as the Walt Disney Company, Caltrans, and McDonnell Douglas Aerospace, Ford and NASA. This network of clients motivated Eyoub to start the Conceptual Design Group in 1983, and the company has won multiple awards for excellence in design. See more: <https://www.condzngrp.com/>



**Herman Colato** University of Colorado with a Bachelor of Science, with a Bachelor of Science in Computers. He will be responsible for building the library and internal communications of our team.



**Mona Kalin** is the office secretary and manager handling all the logistics such as calendar, activity logs, food, reception, conferences, and services crews.



Mary Orland has a law degree and a background in Finance. She will focus in finding grants, contract compliance, and reporting to State and Federal agencies

96,000	Administration	reporting, budgeting, marketing, contracts plans
120,000	Chief investigator	research, engineering, parts, consultants
24,000	Office manager	visitors, calendar, daily log, Services
75,000	Researchers (2)	AI technologies, publishing, users, list of subscriptions
48,000	AI writers (2)	Feed all Bingham Labs data into AI database with chat
30,000	Grant writer	applying for additional funds, success fees additional
33,000	CPA	accounting and reporting
44,000	Legal	attorney for contracts, research/reporting
24,000	Rent/Furnishings	small office for staff and technologies
6,000	Internet	various costs for team members
30,000	Lab Site	Space in Loveland at \$2,000 per month plus FFE
5,000	Cell Phones (5)	latest tech in cell phones and plans

10,000	Computer Hub	equipment for our team and sever for outside IT
60,000	Info tech manager	managing all the AI connections, video conferencing
5,000	Social media	watching what is happening elsewhere
20,000	email marketing	attracting workers and in touch with the industry
15,000	video production	capturing the new knowledge in a visual format for <u>explaining</u> how things work, <u>subscription courses</u>
12,000	Courseware	regular podcast discussions with the industry
28,000	streaming video	watching other technology, meeting workers,
37,000	conferences attend	viewing other labs, meeting people, conferences
25,000	Travel	finds, acquires chemicals, tools, machined parts
50,000	Procurement	costs to build various configurations, feasibility
45,000	Spreadsheet	builds several small utility engines
92,000	Engineering	physicist, components, some engineering, testing
100,000	Demonstrations	office and equipment liability and casualty
4,450	Insurance	travel reimbursements
12,000	Mileage fund	
<u>15,000</u>	Fees approx. 1.5%	taxes, city business and worker fees
1,065,450		

### Below is a detailed use of \$1,000,000 in the first 12 months

**Mission:** providing cheap water and electricity off grid anywhere. A big issue is whether to pull carbon out of the air with trees or machines. This project will collaborate with existing companies in air capture that will explore our set of Performance Goals and build 2 to 3 scale demonstrators to show how much water we can get with our initial configurations. This has the potential to grow into a Multi-\$Billion industry. This phase has \$2 million allocated to it. We may choose to build 100 units or so and put them with customers at cost in order to get feedback and exposure.

Previous research showed the quality of the hydrogen from etching and coating material was overly sensitive to a successful operation. Three metals stand out as catalysts for breaking the bond of hydrogen to Oxygen. They are chromium, manganese, and iron. Then there are new catalysts including a Japanese one. Cleaner Hydrogen is the goal. A new kind of water: When you rapidly heat and cool water, it weakens the hydrogen bonds so it can more easily be split into Oxygen and HYDROGEN... producing LOW-COST HYDROGEN FUEL!! You may wonder how much water vapor is in the atmosphere so an estimate of the water vapor in the air



Globally-[363 Trillion](#) gallons. This research will also investigate the feasibility of electrolyzing water vapor before it is condensed into water.

Our director of research Don Deptowicz has built a hydrogen engine which can be scaled down to a utility sized boot shoe box. This project will study and demonstrate how many hours of use and what size a small hydrogen motor will need to generate 6000 watts per day. For example, here is a small hydrogen motor about the size of an old computer. Here are the [issues to deal with](#) using hydrogen as a fuel.

New [Aquarius Engine Generators\(left and right\)](#) from Israel runs on



Hydrogen and could be used to generate electricity. The engine below is very small i.e. about the size of a shoebox yet can produce 16 horsepower.



Another new technology [Solar to hydrogen](#) also looks promising. Above are new [Electrolyzer showing how compact they can be](#). Also Photocatalytic water splitting shows how [sunlight](#) can be used to split water. By many methods water-splitting can provide new energy sources for changing civilization.

The sustaintment of humankind requires water for agricultural production, for cellular functions which all organisms are comprised of and for many functions which make our lives more comfortable. These air-to-water machines already exists.



[Hydrogen engines to be mass produced by Hyundai by 2025](#)

[Hydrogen engines to be mass produced by Hyundai by 2025](#)

Toyota's new hydrogen Engine [Presentation](#)

The [hydrogen-powered internal combustion engine](#) can produce a power output of 300 kW (402 HP) and a torque of 1700 NM at 2000 RPM. Fulfilling Tier 5/Stage pg. 7 5/Euro7 regulation, the engine satisfies the emission requirements to be 90% decreased to the current level to meet Zero CO2 (below 1g/kwh) and Zero Impact. Toyota is making waves again—this time with a **revolutionary electrolysis engine** that could reshape the future of hydrogen-powered

vehicles. In partnership with Chiyoda Corporation, Toyota is developing a **large-scale electrolysis system** designed to efficiently produce hydrogen by splitting water into hydrogen and oxygen using electricity.

## New Electrolysis Designs can change the world

We will be using Electrolyzers to replace fuel cells. It will still need small batteries, and solar. This is expected to be much cheaper and run continuously for years. It does not need to refill the hydrogen, only the water and filters which can contain the catalyst. This will be part of the maintenance. With mass production we think these three target goals are feasible early on:

- 500 gallons per day for \$15,000 prototype and \$10,000 production
- 3,000 gallons per day for \$35,000 prototype and \$25,000 production
- 5,000 gallons per day for \$75,000 prototype and \$60,000 production

These educated guesses do not include profit, installation or maintenance, but it is a one-time cost for industries that buy water every year such as data centers, fracking, bitcoin, crypto, manufacturing, and cities. Can our design using mass production bring the cost down to \$10,000 per machine? If we can sell machines in large numbers to desperate users, we may be able to get into mass production and drop prototype prices by 20% in order to get to our pricing goals. By using hydrogen extracted from water, the building cost is still cheap and very cheap operating costs. The largest cost is expected to be maintenance. Batteries need changing every two or three years, catalysts need changing when water gets depleted, compressors will need replacement. After a few years, fans wear out, filters will need replacement. Operating 24 hours per day for long periods will require automated monitoring and reporting. Maintenance is the big unknown to explore

New technologies are constantly being found and developed that will have a major difference as this technology develops. For example Japan has found a replacement metal for the catalysis that can produce [1000 times more hydrogen](#).

[Hoover Dam](#) and Lake Meade Down 70%

Water shortage at Hoover Dam is causing concern [40](#)

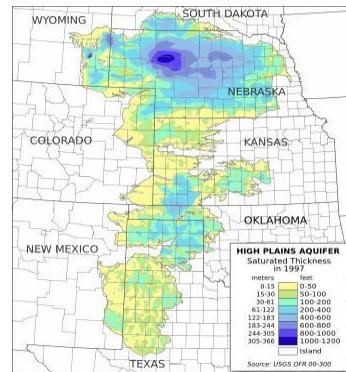
[million People](#) Rely on the Colorado River, and Now

It's Drying Up. Link to a YouTube Video (wait for it)



[Ogallala Aquifer](#) Kansas to Texas Running Dry  
[California Farming](#) and land is sinking.

[Panama Canal](#) drought reduces usage



[Rio Grande River](#) Running dry.

[More on Rio Grande](#)



[Yangtze River](#) China's Beating Heart

<https://www.youtube.com/watch?v=PWnWE-wJlc>

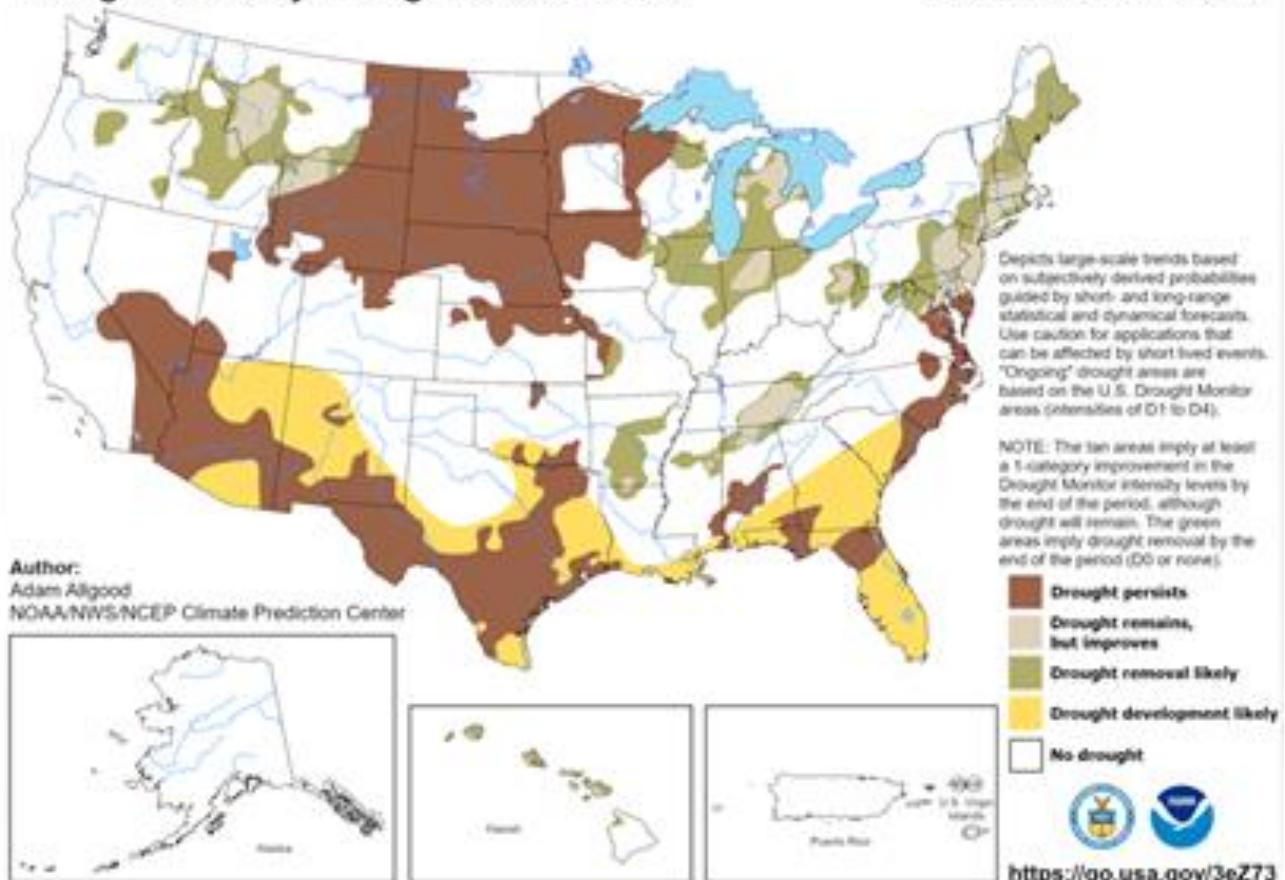


**Water Case Studies:** Remember the dust Bowl? Those conditions are coming back, but not in a small area like last time. Rivers and Lakes are drying up worldwide: Major earth systems are on track to collapse. In a grim turn, that's just the scenario that a team of European scientists are warning about in a [new study](#) in the journal *Nature Communications*: that this catastrophic collapse — along with the ruination of the Amazon rainforest and the melting of polar ice — is on track to actually happen if we continue along our current path. This map shows major the areas in color that make up the USA's 38% drought.

# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for December 19, 2024 - March 31, 2025  
Released December 19, 2024

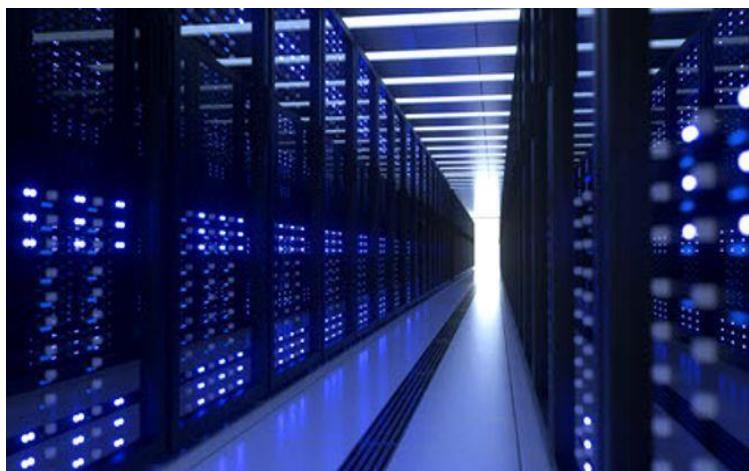


## Customers

The Lab is selling ideas that come in two forms. The first is a Prototype and the second is a Business plan on how to use it in a network. When you study the market, you see how different everyone needs are. Most of the customers will need customized solutions to their problems.

Each fee will be negotiated separately, but an average of \$1,000,000 is certainly probable when working at this large scale. Data Centers are an example of this stratification of need. They are the largest customers with the most urgent needs. They want to build up to 3,000 even larger Data Centers to accommodate the growth of AI into each of them and then use machine Learning to expand their knowledge base. Just giving them a machine does not solve their problems. We will need to work out some of the engineering that illustrates how to best us this technology. The AI market is red hot so we, we will be moving into the new realm of immersive media such as virtual reality, holograms and Spatial Computing. These new media are even bigger than the existing Data Center business of composed of transactions, research, streaming movies, travel reservations and shopping.

**Data Centers Use of Water** The largest water and electricity user will be Data Centers, so much in fact that the research lab will need to develop a special larger prototype to handle Data Center's needs. Total water consumption in the USA in 2015 was 1218 billion liters (3.75 liters = one gallon) per day, of which thermoelectric power used 503 billion liters, irrigation used 446 billion liters and 147 billion liters per day went to supply 87% of the US population with potable water. See [consumption figures](#) Data Centers have thousands of computers that generate heat and need water to cool them. **New Quotes from Weiss Rating about Data Centers use of Water and Electricity.** The number of new hyperscale data centers is growing rapidly with an average of 16 coming online every quarter. These existing data centers have been exposed. They're basically obsolete. They can't keep up. New, far bigger data centers are desperately needed. Not next month. Not Tomorrow. The processors its models run on suck up an inordinate amount of energy and output an incredible amount of heat. Right now. Data Centers also use tremendous amounts of electricity, so much it is exhausting grids all

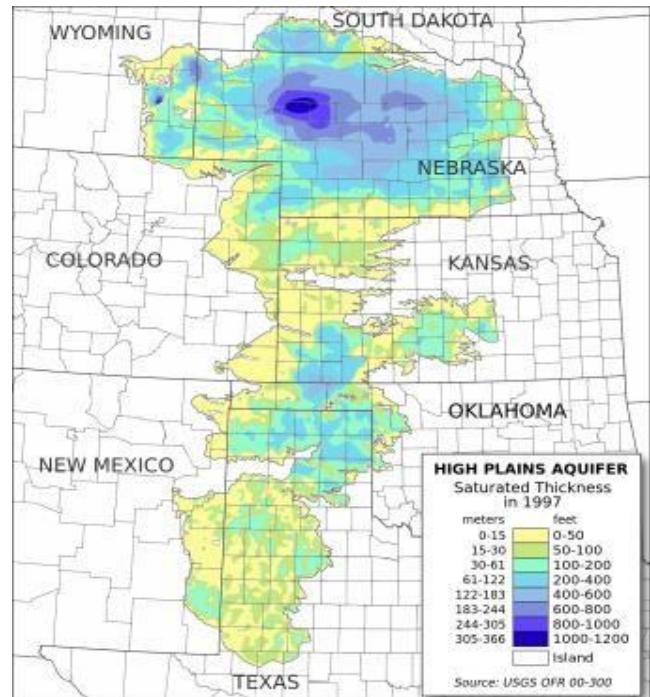


over the world. Some examples: Georgia, where the latest projection for new electricity use is now 17 times what it was only recently. That includes places like Chicago, which is expected to see a 900% jump in power demand. And I think it's only going to get worse. The newer Data Centers are going to be much larger and there will be many more of them. One reason why is more data: In fact, if we could gather up all

the data in the entire world and take a close look at it, we'd discover something truly mind blowing. We'd see that more than 90% of all that data was generated just in the last two years alone. It's true and it continues to grow. AI-generated data is expected to increase another 50%. Today's use is only a fraction of what is coming, because AI is just beginning.

We're still in the preliminary stages. By 2030, as much as a quarter of all U.S. electricity could be consumed by the new media like AI, virtual Reality, spatial computing and holograms.

Thanks to the growth of AI, the internet of things (IoT), machine learning and more, data centers are on track to require an estimated 848-terawatt hours by 2030. Up to 40% will go toward cooling alone, 1 terawatt will cool 500,000 homes for a full year, light more than 1 million homes for a year and fully power 70,000 homes for. Look, we're just at the start of an explosive expansion of data center production. The world's power supply is disappearing. Fast. No wonder Tiras Research forecasts that even before then, by 2028, data center power consumption will be **212 times** what it was in 2023. Billions are flowing into creating mini-Nuclear Power plants, hydroelectric power and geo power to fuel this need, but all these solutions won't be ready for several years. Bingham Labs could have a 10,000 KW generator in prototype stage by the end of 2025. Multiples of this machine could serve the industry.



**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 authorities, resorts, 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.

**We are Studying** A 6 State Public Benefit Corporation: Selling The six State Ogallala Aquifer Oasis packages to 6 States in 2000-unit per year per State quantities for testing the effectiveness of the Oasis Machines to generate the amounts needed. This concept focuses on the western States with the Colorado River and Rio Grande River. Apply to California, Arizona, New Mexico, Colorado, Utah and Nevada with this plan. The Research Labs makes its money by charging a \$1,000 license fee on each machine. Additionally, we can provide the State with a package of services including location planning, manufacturing, and student courseware. We are thinking about a *Public Benefit Corporation* (PBC) with each State owning 30%. This can also gradually grow both a Water Vapor Capture and a Carbon Capture

industry for these States using Carbon Credits that pay down the bonds. Industrial Development Revenue Bonds are a standard in the financial industry and can be used to fund the 2,000 units purchased by each State each year. The California model we want to use is a Philanthropic one, but the PBC can also accommodate profit investment. As climate conditions deteriorate, we expect this market will increase to 10 times the initial 2,000 annual quantities.

## Farming Case Studies

Commercial sales to farmers, data centers, Cities, and buildings will pay more than the \$10,000 costs per-machine to get this technology. Starting with farmers there is a great need for water as their rivers and aquifers are drying up. The Ogallala Aquifer is the greatest [concentration](#) of center pivot sprinklers in America as shown here. 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.



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 as this development continues. [Here](#) is something that could replace the pivot sprinklers. It could fill up from our Oasis Machines.

## Other users

**Cities** There are 275 cities in America larger than 100,000 population. Most of them have water problems from old, rusted clay pipes and even more modern copper pipes. This water is not only dirty, but also unsafe as evidenced by the growing bottled water phenomenon. Who would have thought 50 years ago that they would be paying for clean water by the bottle.

An acre foot of water equivalent to 1000 gallons per day produced by the Oasis Machine can be bottled for over \$2 million in revenue. Cities are hot zones, and they can be cooled by more trees and bushes. Climate crisis predictions are that cities will become so hot it will become unbearable to live in most cities in the south. [Mexico City](#) is already experiencing debilitating shortage of water so bad the city is sinking. Houston, Los Angles and Denver have discovered hundreds of large buildings, and bridges that are sinking and at serious risk. This new landscaping in turn will absorb more CO2 and that can be sold for carbon credits. Many cities can't supply enough new water for growth. Phoenix is an example where the governor just announced, *"developers that are seeking to build new construction will have to demonstrate they can provide an "assured water supply for 100 years using water from a source that is not local groundwater."* This [limits Phoenix home builders](#). Many water users will be competing for water in the future such as: There are 58 million homes in America covering 32 million acres of grass. There are 15,500 golf courses in America that are competing for water resources. As

water becomes more expensive, we can expect the price to rise.



**Wildfires** 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 per day. That would

provide about 15,000 machines plus the money for cisterns, irrigation hoses, sprinklers and installation. These could wrap sprinklers around the houses and grow lush landscaping in addition to hosing down the house during wildfires.

THE DIRECTION OF OUR RESEARCH FOR WILDFIRES

# SOLAR OASIS

A 3D rendering of a house with a solar panel on the roof, surrounded by a green lawn and trees. Sprinklers are shown spraying water on the lawn.

A \$10,000 site cost including an Oasis Machine, a water cistern, sprinklers, underground hoses and installation could be amortized in the property taxes very cheap, maybe \$650 per year. On top of that there will be revenues from selling \$500 of water per month. This would grow a profit surplus, and over 30 years this will grow huge.

To animate click: <https://apparent-technologies.com/FMS4.mp4>

<https://apparent-technologies.com/FMS4.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.

**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? See potential inflation rates.

**Some Water Economics** Oasis machines can serve your needs and then over the next 30 years the amount of water you need is almost free. Let's use Data centers as an example of this formula. There are 5300 Date Centers worldwide, and they handle things like computer searches, streaming video, money transactions, and everything connected to the internet. They use the equivalent output of 100 nuclear power plants and by 2030 when we have the new demands of AI, virtual reality and special computing will be using up to 15% of the nation's total electrical consumption. All of this required tremendous use of water to cool their equipment. Let's use 1 million gallons per day for example. So, multiply these times 365 days and you get 365 million gallons per year. Let's use \$.01 per gallon for simplicity and you have \$3,650,000 dollars per year. Over 20 years this is \$73 Million before inflation, which will at least double these costs. What happens when water goes to ten cents per gallon. You, the consumer, will be paying for it. And you wonder why your cable and computer bills keep going up. Now compare this to a 5,000 gallon per day Oasis Machine costing \$65,000 and the initial purchase is a \$13 million one-time cost with almost no costs there after until new machines are purchased. Of course, this is only a conceptual illustration that does not consider maintenance (very small), inflation (could be a huge factor), installation or profit to our Lab. This is a scalable formula so the cost per gallon can go down and still be relevant for high volume users like cities, frackers, Crypto, bitcoin, military, Developers, oil industry and manufacturing.

We can get Oasis Machines to pull 5,000 gallons of water per day from the air at an average 30% humidity. This would provide 1,800,000 gallons per year per machine. One acre foot equals 325,850 gallons. So, one machine could provide about 5-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.

**\$1,000,000 The First Project is Personal Assistants in a Smart-Grid.** Oasis Machines can also be used to generate electricity using the same electrolysis that is used to capture water. The operating cost is lower than purchasing power from the grid, with estimates of 2 to 4 cents per KW compared to utilities that charge 12 to 18 cents per KW. Most of us have heard about how fragile the grid has become as more users demand power. Growth in AI, data centers, Bitcoin, Google searches have become a serious problem. Officials sound alarms as [crypto mines](#) threaten to crash US state power grids. Texas is home to [10 of the 34](#) largest Bitcoin "mines," according to Inside Climate News. Bitcoin mines are enormous warehouses where thousands of powerful computers operate 24/7, running programs that support cryptocurrency transactions and operations. But the [use of so much power](#) is doing more than simply validating purchases. It's now threatening to crash into the state's power grids. The crypto mines can draw up to 2,600 megawatts of power — the equivalent of the power used by all of Austin — and their demand is on track to almost double by 2030, per the news outlet.

### **\$1,000,000 The Second Project: AI Factories with Fiber Optic Transmission**

The fourth research venture will be "AI Factories Model with Fiber and Media Demonstrations" - This research will follow the same template used on the other ventures for \$1,000,000. Underneath the guideway there is room to hang 5 to 6 pipes about 3" in diameter. These pipes can carry fiber optic cables with 72 strands in each. The carrying capacity of some strands can be multiplexed equivalent to 5 to 10 single fiber optic strands. Thus, the combined number of channels could grow into the thousands. Fiber optic cables solve a massive problem by removing congestion over the wireless networks. Research shows that 90% of all the digital information in use today has been created in the past 10 years. This means that the cables will fill up no matter what is put on them. But our idea is to introduce the newer media. This [growing](#) capacity will allow for all the existing forms of media plus new ones like Virtual Reality, AI, Augmented Reality, [Apple fi](#) and 5G which is 60 times faster than 4G and even Spatial computing Holograms. Thus, creating huge new economic growth. ATT is marketing [fiber connections](#) for \$110 for residential up to \$190 per month for commercial. This tells us today's market. [Oriole Networks](#) is finding a new way for 100 times faster transmissions

In urban areas the fiber will go into a vault for connections, testing and access. These vaults will be about 8' by 10' and located at columns nearest to stations. A simpler system will be to hand

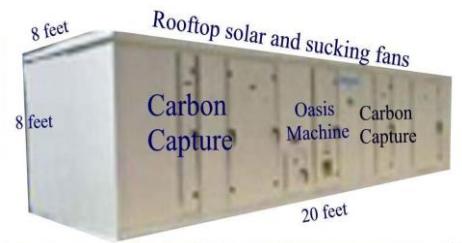
off the final mile to existing telecoms in the area and let them use their networks or add wireless to the destination. In this scenario the local Telcos will be the customer, and they will provide the electronics such as coders and decoders that change the photons used in the fiber into digital signals for transmission on their networks.

Another scenario is to build out the full technology and go for retail users. Along the guideways wireless transmitters can distribute and collect cell phone signals to an audience of user's livings within miles of each side. The end user will have control of this media through his cell phone. The cell phone can navigate this use of his traveling schedules, reservations, and deliveries. The fiber media construction cost (for the 50,000 miles Interstate backbone + another 50,000 miles in the cities) could include \$500 Billion of the \$3 Trillion Economic Model. In this scenario fiber will support 50,000 to 100,000 publishers in video, AI, virtual reality and even holograms paying a higher fee to an audience of millions using their cell phones for access. New VR applications in sports, education, engineering, medical, entertainment, architecture and travel will create huge new revenues. They have not been calculated yet but are thought to double the amount of other technology profits. Downtown Denver has two large redevelopment sites next to the Auraria Campus shared by three universities that could become a development site for these new media. See Universal Mind slideshow for more information.

## **\$1,000,000 The Fourth Project Is Carbon Capture and Utilization:**

Both will use the Electrolyzer technology developed in the early research. When we have a demonstration of the model Oasis Machine, we will start looking at Carbon Capture using the technology from the Oasis Machine. Direct air capture is in its infancy, and current versions of the technology are extremely energy intensive and that is why we must do the hydrogen from water technology first. A Carbon Capture Machine is a companion project that is dependent on the Oasis Technology for electricity and perhaps water. It is expected to be about a 20' size like a shipping container. When we have a demonstration model Oasis Machine, we will start looking for the Carbon Capture technology. Goal within 3 years is

1,000 tonnes per year per machine.



See the 5 Best Ways to pull carbon from the air. There are emerging New technologies that can make air capture more feasible. The air passes over a sorbent filter that traps the carbon dioxide and heats up the filter to 212 degrees, which releases the trapped carbon

dioxide. Here is an M.I.T. [Solution](#) and the [US vision](#) for carbon Capture. Most Carbon capture today is focused on smokestacks where the carbon is very dense in one place. But that is expensive at \$50 million or so per site and the plant doesn't remove the ambient carbon dispersed all over America in less density. Below is the industrial size for removing 1000 tonnes p/y. Is [collaboration](#) possible? Berkley Labs is working on a Carbon Capture [absorbent](#). New materials are announced regularly like this [textile filter](#) that absorbs carbon.

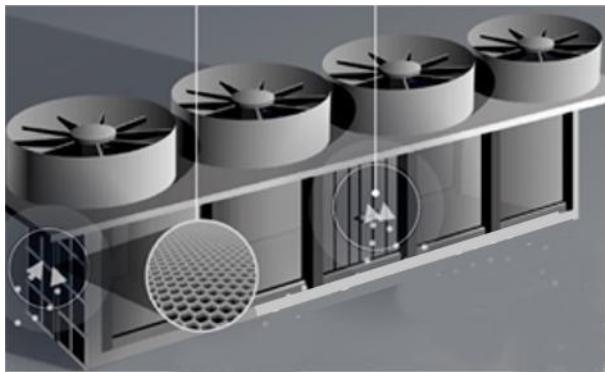
## Why Research Is Needed:

This research venture will follow the same template as the Oasis Machine with a survey of the industry and then an RFP among the industry to find the consulting talent the project needs. [Building public confidence](#) in air capture is a must. There's an increasing need for gas separation [membranes](#). Some say with existing technologies, we would need to treat 1.25 million cubic meters of air to capture one tonne of CO<sub>2</sub> per year. [Better technology is needed](#). And that is the purpose of this research. Currently Carbon Capture is energy intensive when using the grid, that is why the oasis machine must come first to supply cheaper energy. If we could afford 5 million units placed along all our Interstate Highways, and if we can get to 1,000 tons per year each, then the goal of 5

billion tonnes per year of carbon could be attainable. Here is some computer modeling of [Climate warming](#) showing the need for such air capture. Even if we could stop all future emissions, there is still an estimated 400 billion tonnes over America that has accumulated for the past 125 years. Once diluted by atmosphere to 420 ppm, the volume of CO<sub>2</sub> equivalent to a layer over the entire US land surface 1.8 m thick. This is the driver of today's climate change, and it must come out over the coming decades. It will cost \$trillions but can investors make money on the technologies? This study will look into how. There are many new technologies for air capture. Here is a new sponge like [material](#) to capture the CO<sub>2</sub>. Here is one called [mechanical trees](#). The [Department of Energy](#) is offering funds and [resources](#) on Carbon Capture research. The US government has allocated [\\$12 Billion](#) for research and development in establishing a carbon industry. [The big cash behind Carbon Removal](#). DOE also published the [Carbon Negative Shot](#)

The estimates online for CO<sub>2</sub> in the American atmosphere is 400 billion metric tonnes. Thus, the need for [massive CO<sub>2</sub> removal](#). If each machine could capture 1000 tonnes per year, it would take 10 million of them spread out along the highways, farmlands, forests, and urban areas to generate 10 billion tonnes per year of carbon removal. By manufacturing small machines like this, the price can be reduced from the huge \$50 million costs at power plants. Today's carbon price varies but the lowest is about \$20 per tonne but estimates for the next 10 years go up to \$100 per tonne. The research will also

investigate the feasibility for revenues and costs to operate. Other questions like: How much energy does the machine require? How it stacks up against the [competition](#) will be investigated?



Can we engage the competition to collaborate on Climate Tech as a national enterprise? [Global Thermostat](#) in Brighton, Co. has an air capture machine shown left here that is very far along and similar to what we envision.

Elon Musk's \$100 Million competition is for a machine with a minimum of 1000 tonne removal p/y. So, the industry thinks this size is possible. [Iowa State](#) announced a 1000 tonne Carbon Removal per year entry. The changes just keep coming. A Use of Funds Budget will be crafted when more information is available.

Two centuries of CO2 has toxified the atmosphere, if we don't get the CO2 out of the air sooner than 30 years, mankind could be facing climate collapse. The bipartisan infrastructure bill President Biden was signed into [law recently, provides \\$3.5 billion](#) to create four regional direct air capture hubs with the capacity to capture and sequester at least 1 million tons of carbon annually. It also sets aside \$100 million for a commercial direct air capture technology prize and \$15 million for a pre-commercial competition. The Dept of Energy was offering a new \$1.5 billion in grants for expanding hydrogen hubs. Trump may have killed it. There is a \$100 million minimum application which is due in December of 2025. A submission will require lots of Companies, labs and even states to be involved. The National Energy Renewal Lab already has just such a consortium with over 1,000 members. NREL's web site has a section inviting new partners.

Following the format of the other research ventures, the initial effort will be to survey the industry to find the "State of the Future" for Carbon Storage. "Where to put the carbon emissions is the big issue: Taking CO2 out of the air and using it to help plants grow could be THE GREENING OF AMERICA. Carbon Dioxide can be used for crops, forests, and urban landscaping. For example, assume one tree absorbs one tonne of CO2 over 40 years. How much can an acre of corn or vegetables absorb? Higher concentrations of carbon dioxide make plants more productive because photosynthesis relies on using the sun's energy to synthesize sugar out of carbon dioxide and water. Plants and ecosystems use sugar both as an energy source and as the basic building block for growth. When the concentration of carbon dioxide in the air outside a plant leaf goes up, it can be taken up faster, super-charging the

rate of photosynthesis." Link to a [Soils Science](#) Revolution. [Companies](#) can calculate this. How does the carbon get into [soil](#)? Most of the CO2 still has to be collected for processing. [Precision Agriculture](#) is coming. New technology is promising with indoor farming, 1,500 times more yield but at a high price for electricity.

### Transforming Carbon Dioxide Into [Industrially Useful Materials](#).

There are many uses for carbon that could turn CO2 into a tradable beneficial asset that can make money. Here are the [top 10](#) with estimated pricing. Below are some more detailed examples to storing the carbon dioxide such as:

1. CO2 batteries [New CO2 batteries](#) promise to store energy effectively
2. Soils sequestration [farming](#), large rocks, oil wells
3. Cement [made with CO2](#) can be permanently stored in concrete ([video](#))
4. Diamonds - [Turning CO2 into diamonds](#)
5. Fuels - CO2 can be sequestered in [fuels](#).
6. Microprocessors - New carbon prospects for [electronics](#)
7. Vodka- Carbon can be used to make [Vodka](#) and other Spirits
8. Materials- there are many building materials which can use CO2 like [drywall](#)
9. Other Materials- CO2 can use many other materials which, [here are 10](#)
10. Spreading [rock dust](#) on farms: a tantalizing climate solution
11. Turning Co2 into syngas [a useful fuel](#)

This research will focus first on soils, which is the largest storage option and [calculate](#) the best way to get crops and landscaping to absorb carbon dioxide. [Vertical farming](#) is a leading candidate as it can produce many more crops per year than outdoor farming and it is not subject to the outdoor heat from climate change. However, it consumes a lot of electricity. Soil carbon sequestration can not only store CO2 in the soil but [also enhance agricultural](#) yields. [The One Trillion Tree Initiative](#). Smaller projects can be [home gardens](#). What could 5 million home garden sized landscaping sites do for sequestration? As in the other two research projects a collaboration is planned, but this time among 3 universities to set up carbon crop labs and each one receives a \$100,000 stimulus to establish a lab for measuring the amounts of carbon dioxide various plants can absorb. [Composting](#) can help forests grow. The single most expensive part of growing a field crop is the fertilizer which has become very expensive. Someday farmers may be able to replace fertilizers with carbon that could be cheaper. This will require some pipeline to deliver it. "[There are over 5,000](#) miles of existing CO2 pipelines already in the U.S. that are owned by 29 companies" [See Maps](#). There will be a big business in building pipelines to collect the CO2 for processing. The industry with the most experience in pipelines is the Oil Industry. Exxon is getting into R&D with a [\\$15 billion](#) pledge. Companies are coming up with ways to calculate the [carbon](#) footprint of buildings. This will focus on finding new capital that can take us into Manufacturing and new research

projects in Transport. By then the value of the Oasis Machine should have been proven, and a large multi-state collaboration should be underway. We should also have revenues from crowdfunding and grants of at least \$2 million.

**Lab Location** The Preferred Location of the Research Lab is in the former Hewlett Packard campus which has been turned into a multi-tenant campus in south Loveland.

# THE Startup LAB LAYOUT

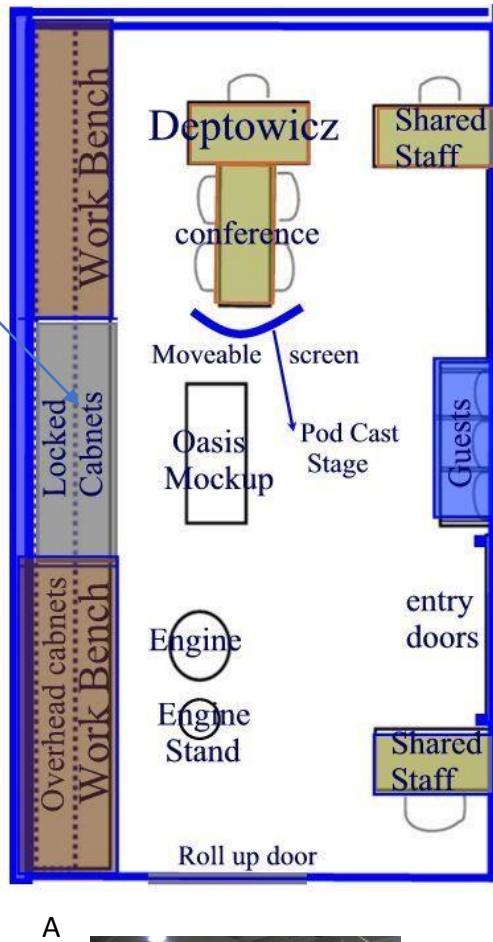
### A schematic of 1,100 sf room



This is a steel storage Locker with drawers for tools in the middle and adjustable shelves for larges objects



22 ft x 50 ft

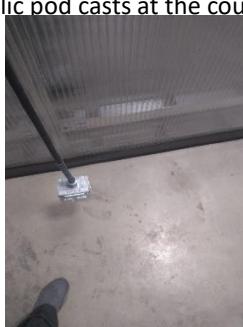


The area around our lab space may still be available for our expansion.



## The Pod Cast Facility

The space has all furnishings on rollers for creating different arrangements. Teleconference screen is on rollers to support private conferences with Deptowicz and moved into position for public pod casts at the couch.



## Moveable Power

Keysight Technologies [Keysight.com](https://www.keysight.com) is a major company that owns most of the surrounding property on a campus built by Hewlett Packard. The main business is in building digital instruments for measuring. They work on futures products with the cell phones and have a support division for other industrial services.

This location offers amenities as well:

- \* A Cafeteria or Café for a variety of food and beverage services is only steps away
- \* For our team there is a gym, locker room, showers
- \* Access to the Internet
- \* a patio is available
- \* a technical Library is steps away

There is also a second level below where some manufacturing opportunities can be explored. This facility gives us a Stage that will allow our Research Lab to engage more people with conferences, small meetings. open houses, podcasts. We can hold larger conferences for getting outside participation in our lab. As we get more familiar with the participants and with the facilities, we can also raise additional funding for future activities. Since our intended research has not been done at this scale before, our research lab needs to find the leading edge that others have already created.

### **Future Transport Research Projects**

The commercial truck market has 166.2 million registered vehicles in America and the government wants to decarbonize the use of fuel cells. Electrolysis may do better. Late last year they were forced into bankruptcy by a creditor unwilling to wait on a positive cash flow. The new purchaser is expected to have deeper pockets. We will propose a Joint Venture on building hydrogen motors using our electrolysis. This will occur in their space which is only 200 feet away. This link shows the state of the industry at [CES 2024](https://www.ces.com/ces-2024). No matter who occupies this space, we hope to cut a deal for replacing their fuel cell technology with our electrolysis technology in some of their space which is so close to us. Then using their facilities and perhaps Key Site also, we would measure the performance of the upgrade.



**The size of the market depends on Impacts an Oasis Machine can address:** Here are examples of why the market is so large. [An extreme heatwave and drought](#) was seen roasting China for 70 days straight in 2022, something that “has no parallel in modern record-keeping in China, or elsewhere [around the world](#) for that matter.” “Included among these terrible events are record-breaking [heat waves in the Pacific Northwest](#) of the United States and Canada, [killing more than 100 people](#).

One commentator believes this is not just a 1200 year drought, but the beginning of permanent aridification; With examples like the early onset of [wildfires](#) in the West; [devastating droughts](#) across many parts of the United States and major rivers drying up worldwide you have to wonder. Lake Mead is near Las Vegas and supplies water to Hoover Dam. The water level has been down nearly 2/3 over the past 2 decades and if it drops by another 150 feet the electric generators will not have enough water to operate. [Hoover Dam](#) supplies over 2,000 megawatts to Los Angeles, Phoenix, and Las Vegas. This is enough to supply the needs of 8 million homes. Here is a scenario that could put a dent in the problem. This Technology already exists today, but the costs are much higher as each machine is handmade. Manufacturing of much smaller units could bring the costs down to this level. There are many unknowns that research can resolve like power requirements and maintenance, but the gist is it appears an Oasis Machine can make a sizable dent in this the earth drying up for less money. Here are some Relevant links: Lake Mead

[https://www.youtube.com/watch?v=NCBG\\_aVkv4s](https://www.youtube.com/watch?v=NCBG_aVkv4s) California is Sinking

<https://www.youtube.com/watch?v=2kgLzSwL7kE> Vanishing Groundwater:

<https://www.youtube.com/watch?v=RjsThobgq7Q>

Assuming we can get 3-acre feet per year from each Oasis Machine, the market could be huge over the next 30 years such as 5 million machines in America alone. Major competitors will jump in because it is not so complicated, and the technology will be badly needed. So, existing machines are inadequate in highly water-dependent commercial markets like agriculture and sanitation. When successful, the Oasis Machine can go anywhere, it can supply existing land uses and even start [new communities](#). The initial use we are after is a small Atmospheric Water Generator that can run anywhere off grid. Farmers use 85% of Americas water on crops and urban uses are only 15% for all the different needs. If it were bottled it could bring over \$2 million per a/f. As the world continues to dry out, water could become more expensive than gasoline and hydrogen generated water could become a big part of its replacement.

**What are some of the comparisons between fuel cells and electrolysis?** Fuel cells use hydrogen to generate electricity to drive the electric motors. They get 300 to 400 miles per tank of hydrogen. The tank is filled up like current gas stations but is more costly than gasoline. Fuels cells are custom built. The government is currently pushing this technology as a competitor to batteries which many car manufacturers use. In 2022 a fuel cell for a bus was \$58,000. Since then, the price has come down by more than  $\frac{1}{2}$  and will continue so.



**Electrolysis** is too new for most manufacturers but has several advantages. We think its advantages are superior to the fuel cell for these reasons. The equipment is about 1/3 of the costs for fuel cells or batteries including an electric generator. electrolysis is constantly making hydrogen so there is no need to find a fill up. Its range is yet to be determined but about 1000 miles in demonstrations. A main constraint is a catalyst needs to be added with more water as it depletes. Internet literature says costs per 1,000 miles could be as low as \$25. This will be the main area of research.

**Additional Capital There are sources of additional funds we can bring in**  
These sources don't need equity such as: Government: SBA, DOE, Dept of Interior, Dept of Agriculture, DARPA Philanthropic. Last summer we were invited to make a \$20 Million submission to the California Municipal Finance Authority for an economic development grant in our field. We did not have the \$91,000 submission fee. The funds had to be used in California for plants and equipment. We plan to apply this summer, when we have the funds. They seem to be the leader in progressive thinking on current issues. We will continue to explore ways of submitting proposals to CMFA that can be models for other States that share the CA water predicament. If we win an award, a similar technique will be used in Arizona New Mexico, Colorado, Utah, and Nevada to form a coalition of States wanting to build Oasis Machine manufacturing centers in their State. These states can then act in unison to provide more water to their Rivers and farms. Over the next 5 to 10 years, is it feasible to consider manufacturing one million Oasis Machines delivering a couple of millions of acre feet of water from the atmosphere in these 6 States? We need a test



## Grants

We have hired Mary Orland to start a grant funding arm. She will focus on small grants under \$3 million. Her first task is to create a spreadsheet of potential Grants from \$100,000 to \$3 million as shown in this [grants link](#).

- Public/philanthropic investors take the first hit if the project underperforms.
- Makes senior tranches safer and more attractive to private investors.

After we have been funded, one of the early position activities will be to build this into a group effort. we will fill is a Grants officer. There are hundreds of public and private foundations plus the [Federal agencies](#) who would like to give out free money for public purposes such as new technologies. Our Oasis Machine is just one such opportunity to replace the existing ground water system. Grants could easily provide millions per year for new research. Start Engine is a crowd funding company that starts with a \$500,000 offering and after these funds runout we can apply for higher amounts each year and over time all the way up to \$75 million. Eventually we will engage [a](#) company to submit Grant Proposal to federal agencies. Some have reviewed our web site and tell us we qualify and are well prepared. Long term we will engage a company to work our grants funding with a combination of a \$2,500 monthly retainer and a success fee of 3% to 5% for each one they bring in. This should grow into a year-round effort with millions of dollars from grants.

## Exemples:

[Natural resource conservation nonprofits | Cause IQ](#)

<https://usafundingapplications.org/v9/c/>

<https://www.causeiq.com/organizations/american-rivers,237305963/>

<https://www.causeiq.com/organizations/treepeople,237314838/>

<https://www.causeiq.com/organizations/american-farmland-trust,521190211/>

[U.S. Economic Development Administration](#) (EDA) has millions available for a variety

\$100 million [Dept of Energy](#) Grant for Carbon Capture Due Dec 2025

\$3 Million [Office of Science](#) to stimulate competitive research in Technology due Jan 30, 2025

## Manufacturing

\$50 million is a goal to start a manufacturing venture with someone. Not all these funds will go into manufacturing. This is the best opportunity to repay the \$5 million investors for their initial capital. They will still own their 50% share unless they want to sell that too. But there are several options to explore before this happens such as an IPO. Once again, we will have choices. The original capital investors could sell their 50% interest in the Company, A public offering is also a popular way to go. It is clear that we need the collaboration of the seed capital investors to concur on a plan for profit taking.

## Cash Flow and Profits Discussion

### Possible Research for Specific Customers for Cash Flow

It is difficult to estimate profits from where we are as a startup research lab. During the first \$1,000,000 seed capital phase, a profit structure will be discussed with the capital investors. However, after 2 years we will have engineered, built and sold some Oasis prototypes in some of our target markets and established a foothold in the markets we have chosen. Our focus will be on the government and commercial market that buy large numbers of units. We could sell 100 units or so at breakeven price in order to get performance overtime and marketplace feedback. From where we are today it is not possible to say prices, sales volume or profits. But we do know we have something that is badly needed and likely to generate these prices below.

1. A residential scale that produces 1,000 gallons per day is sold for \$10,000+/-
2. A commercial scale that produces 3,000 gallons per day that is sold for \$25,000 +/-
3. An industrial scale that produces 5,000 gallons or more for \$65,000 or more.

Here are some comparable showing where the air to water industry is today and that the above goals are attainable

Aquaria – is a comparable

Oxydus

Triton is comparable

Kara Water

Water Cube

Watergen

There are several ways to generate profits. But it is way too early to put numbers on generating revenues. We can include a 20% markup in these prices. We could charge an annual lease fee of about \$1,000 after selling the units. We could fund the manufacturing of the units with revenue bonds and sell only the water these machines develop in annual contracts. These questions are part of the Research Lab's work. Over the years inflation will drive up the price of water, while the asset cost will remain fixed.

One way or another a significant cash flow will develop within three years that will form the basis for company profit taking. Three years from now our goal for the company should be

worth \$50 million or even more from proven sales potential. Each technology shown in this plan can be spun off with a separate IPO. This gives Bingham Labs steady customers and relieves them of all the issues around manufacturing and sales.

## EXPANSION CAPITAL FUNDING

This capital is about growing a variety of capital sources into a FUND for \$8 to \$10 Billion for a National Test. A plan is emerging and will be added to this section soon. The first \$5 million will be used for general electrolysis R&D, an AI model, and then the Oasis Machine. After that each technology will generate its own \$5 million fund for R&D on prototypes and a plan on incubation for each \$1 Billion:

[Fiber Optic Backbone](#)

[Smart Grid](#)

[Carbon Products](#)

[Automated delivery](#)

As these smart Infrastructure gain funding they may be spun off as subsidiaries. This is a decision the investor needs to be a part of.

### Consulting Services

Bingham Labs will contract with Applied technologies.com to provide a consulting service for AI presentations and AI setups in 3<sup>rd</sup> party offices. The hourly rate will be \$120 per hr. and the rate for producing AI presentations will be \$1,000 for the first 2 minutes (minimum and \$500 per minute thereafter. Here are examples clients can choose from:

1. <https://lloydgoff.com/solaroasis/>
2. <https://lloydgoff.com/videos/Ron002.mp4>
3. Bingham Labs AI general announcement <https://lloydgoff.com/ron005.mp4>
4. <https://lloydgoff.com/10BillionNationalInfrastructureExperiment.mp3>
5. Ai Ronald to Bank of America by Gmail [lloydgoff.com/BinghamLabs004.mp4](https://lloydgoff.com/BinghamLabs004.mp4)
6. AI YouTube video 6 minutes [https://lloydgoff.com/videos/0420%20\(1\).mp4](https://lloydgoff.com/videos/0420%20(1).mp4)
7. AI Bob <https://www.lloydgoff.com/i-70corridornarration.mp4>
8. AI Robot presenter for [military parts](#)
9. Video introduction [to water scarcity](#)

Who was Kent Bingham

Resume

Kent Bibliography [Kent Bibliography](#) <https://www.lloydgoff.com/web/kent.html>

