

Electrolysis Overview

Electrolysis is used today in a variety of different ways. It is well developed energy source that can do many things

1. Extraction of Metals (Electrometallurgy)

Takeaway: Electrolysis is essential for producing highly reactive metals that cannot be extracted by heat or chemical reduction.

- * Aluminum production (Hall–Héroult process): Alumina dissolved in molten cryolite is electrolyzed to produce pure aluminum.
- * Sodium, potassium, magnesium: Produced by electrolyzing molten salts such as NaCl or MgCl₂

This is one of the most energy-intensive but economically critical uses of electrolysis.

2. Purification (Electrorefining)

Takeaway: Impure metals are purified to extremely high levels using electrolysis.

- **Copper refining:** Impure copper dissolves from the anode and deposits as 99.99% pure copper on the cathode.
- Used for metals where electrical conductivity or purity is essential (electronics, wiring, precision alloys).

3. Electroplating (Surface Coating)

Takeaway: Electrolysis deposits a thin metal layer onto another material.

- **Purposes:** Corrosion resistance, decorative finishes, improved wear, conductivity.
- **Examples:** Jewelry, kitchen utensils, automotive parts, electrical connectors.

Electroplating is one of the most widespread consumer-facing uses of electrolysis.

4. Chemical Production

Takeaway: Electrolysis is used to manufacture essential industrial chemicals.

- **Brine electrolysis:** Produces sodium hydroxide, chlorine gas, and hydrogen — foundational chemicals for plastics, disinfectants, and fuels.
- **Water electrolysis:** Produces hydrogen and oxygen for fuel cells, industrial processes, and clean energy systems.

This category is rapidly expanding due to the global push for green hydrogen.

5. Energy & Emerging Technologies

Takeaway: Electrolysis is becoming central to clean energy systems.

- **Hydrogen production for fuel cells** (transportation, grid storage).
- **Power-to-gas systems:** Converting excess renewable electricity into hydrogen.
- **On-site hydrogen generation** for industrial burners, metallurgy, and chemical synthesis.

How Bingham Labs intends to use this technology.

While not covered directly in the cited sources, these uses are well-established extensions of water electrolysis. Our focus is on broadening the applications to power our 6 smart infrastructure in Transit and Driverless delivery, Water and Carbon Capture, AI Smart Grid and AI Media Factory (World Stages)

Skyways will use Electrolyze for direct car propulsion, HVAC, doors, Travel Services. Skyways will also use electrolyze to power our Linear Induction, especially in the mountain. See How This Will Work with Our Technology for Travel and Delivery Services at: [LinearInduction.pdf](#) One of our concepts is to introduce driverless cars to all Station stops. They have a dedicated path around the town. See Vail Example of a driverless Circulator at: <https://binghamlabs.com/docs/Vail-Example.pdf>

The Next example of the Electrolysis in the Oasis Machine. And it could not come at more critical time with the drying up our western American for that matter the Whole Earth. We have research that shows how to build at least a better Atmospheric Water Generator that exists today and maybe a new Electrolyzer that is cheaper the build, operate and scale. We are showing applications we think could deliver Atmospheric Water for less than 2 cents. There would be more expensive than the water we are used to but not as expensive as doing without

water. See Oasis Machine see the [Oasis Research Agenda](#), (After video click on the right to see a document). Finally, our Study model [OasisMachineAWG.pdf](#)

Carbon Capture

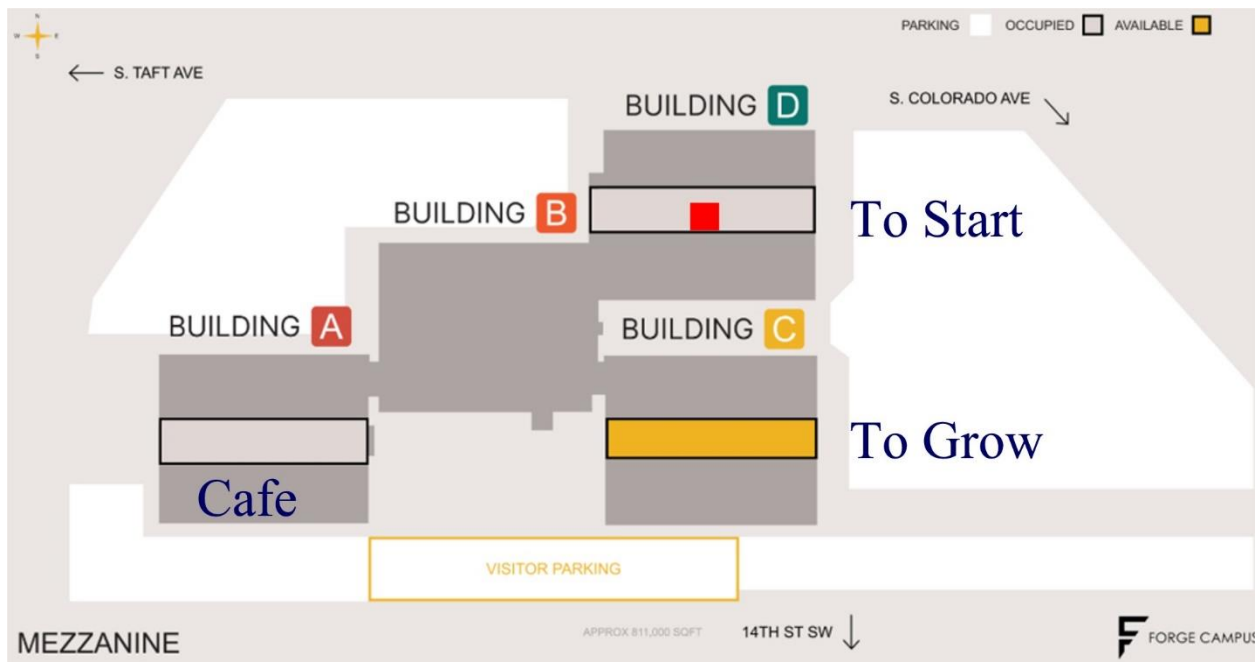
All we have prepared on this subject is our Study model. It turn out that Carbon is not the most dangerous element is the air. See [CarbonCaptureProcessing.pdf](#)

AI Tablet and Personal Assistance is currently an Indiegogo Crowdfunding. See [AI at the EDGE: Local AI Tablets by Bingham Labs by Bingham Labs - Indiegogo](#).

AI Media Factories. This may become the most profitable sector of all because it so immersive. It need a research center because everything is new. The location in downtown Denver first and overtime show all the benefits build at the Auraria Campus. Three Universities share on campus, and it is surrounded by the 6 World Stages venues. See our powerful video for this high-Tech Media District https://www.binghamlabs.com/video/video_container-bingham_innovation.html Stay tune after it end, there is an explanation this why this will change our lives.

This is where we want to open our Research Lab www.ForgeCampus.com in Loveland, CO. with over 40 Companies Changing the World





We are proposing the creation of smart districts that that use Public Financing:

https://www.binghamlabs.com/smart_district_table.html

Funding Options <https://www.binghamlabs.com/funding.html>

From Crowdfunding, grants, convertible debenture, construction and revenue we show how each phase can be funded.

We will offer a Public Discussion at: <https://binghamlabs.com/queries.html>

We are giving you a voice about what kind of future you want to see. Each week

The Research Agneda

The 10 inventions they don't want you to know about

<http://www.killermovies.com/forums/archive/index.php/t-25948-10-inventions-they-dont-want-youto-know-about-warning-long-read.html>

3. SYSTEM TO SPLIT WATER FOR FUEL BY USING RESONANCE Another variation on the water fuel theme relies more on vibrations than on chemistry. At more than 100 per cent efficiency, such a system produces hydrogen gas and oxygen from ordinary water at normal temperatures and pressure. One example is U.S. Patent

4,394,230, Method and Apparatus for Splitting Water Molecules, issued to Dr. Andrija Puharich in 1983. His method made complex electrical wave forms resonate water molecules and shatter them, which freed hydrogen and oxygen. By using Tesla's understanding of electrical resonance, Puharich was able to split the water molecule much more efficiently than the brute-force electrolysis that every physics student knows. (Resonance is what shatters a crystal goblet when an opera singer hits the exact note which vibrates with the crystal's molecular structure.) Puharich reportedly drove his mobile home using only water as fuel for several hundred thousand kilometers in trips across North America. In a high Mexican mountain pass he had to make do with snow for fuel. Splitting water molecules as needed in a vehicle is more revolutionary than the hydrogen-powered systems with which every large auto manufacturer has dallied. With the on demand system, you don't need to carry a tank full of hydrogen fuel which could be a potential bomb. Another inventor who successfully made fuel out of water on the spot was the late Francisco Pacheco of New Jersey. The Pacheco Bi-Polar Auto electric Hydrogen Generator (U.S. Patent No. 5,089,107) separated hydrogen from seawater as needed. A pioneer breaking down water into hydrogen and oxygen without heat or ordinary electricity, John Worrell Keely reportedly performed feats which 20th-century science is unable to duplicate. He worked with sound and other vibrations to set machines into motion. To liberate energy in molecules of water, Keely poured a quart of water into a cylinder where tuning forks vibrated at the exact frequency to liberate the energy. Does this mean he broke apart the water molecules and liberated hydrogen, or did he free a more primal form of energy? The records which could answer such questions are lost. However, a century later, Keely is being vindicated. One scientist recently discovered that Keely was correct in predicting the exact frequency which would burst apart a water molecule. Keely understood atoms to be intricate vibratory phenomena.

Another key Could be LOOPING

THE KEY TO REDUCING ENERGY COSTS FOR WATER PRODUCTION IS LOOPING
We believe that the use of an "Over Unity" (produces more energy than it consumes) fuel to power the OASIS machine will permit us to create a looped, auto-running

machine that some would say is not possible. They base their opinion on the belief that we are proposing a perpetual motion machine, which they say violates our present laws of physics. We are indeed creating a “free energy” machine, and you have been lied to relative to “Laws of Physics.” HERE’S HOW LOOPING WORKS Instead of plugging the H2 FUEL PRODUCTION UNIT (FPU) into the wall, we instead plug it into the GENERAC power generator. Yes, I know that sound crazy but read on. The FPU needs a battery, the same as an automobile, to get started. You turn it on using battery power, the HHO or H2 gas begins to bubble out of the water, and gas pressure begins to build up to about 20 psi. When the pressure is at that level, you turn on the GENERAC, which will start up about as fast as your car starts. The GENERAC now has electricity coming out of its POWER CONDITIONER and the AWG unit starts up. Here is where the magic starts. With the OASIS machine, it takes roughly 1 kW of energy to produce the HHO fuel by electrolysis (aka “Water Splitting”). When you burn this HHO fuel in the ELECTRIC POWER GENERATOR, it produces 8 kW of electric power.

The LOOPED POWER SUPPLY cord takes 1 kW of electric power back to the H2 FUEL PRODUCTION UNIT, leaving 7 Kw of power to be supplied to other devices. We can provide videos of this process and refer you to websites where this can be demonstrated. The 8-kW output of the GENERAC has more than enough power to keep the FPU running, because that FPU unit only needs less than 1 kW to operate, leaving 7 kW to operate the AWG units. The battery stops powering the FPU as soon as the GENERAC starts putting out power. This is just the same as your car, where the battery stops providing power as soon as the engine starts running. Do we suggest that we produce a perpetual motion machine? No, not at all, however based on what the OASIS machine can do, it does on the surface appear to be perpetual motion. The answer is that we have rediscovered a phenomena that has been well known for over 100 years, ever since people started working with hydrogen. Of the several ways to burn H2, you always get more energy back than you put into the burn process. This has been very clearly demonstrated with Cold Fusion. CF has survived the vigorous attempts to discredit it. However, it does work. Not convinced yet? Well, I don’t blame you. You would have a lot of trouble finding any information about this OU (Over Unity) business on the internet.

When hydrogen is burned, you always get more energy out than the energy needed to produce the hydrogen fuel. You will not be able to get verification of this statement from the internet. There are a few verifications of this regarding cold fusion, and a new group featured at <http://www.solarhydrogentrends.com/#works> Because of this energy boost that hydrogen fuel provides, you can take the power cord that you used to initially power the hydrogen production unit and loop it so that you plug it into the electric power generator. Sounds crazy doesn't it, but I know it works. You can get more info from the following

James Clasquin will manage the electrolysis Labs we plan to build in Co.

Professional Background:

He has worked in technical/VP roles, including Vice President, Technical at Highstreet Online and Vice President, Technical at MetCon, LLC Pennsylvania

He is a Colorado School of Mines graduate with a chemical engineering degree.

Clasquin is listed as an inventor/assignor on a U.S. patent (e.g., related to electrolyte solution and electrochemical surface modification methods, assigned to MetCon LLC around 2010). This aligns with MetCon's technical focus, including specialized processes (one entity variant involved electrochemical conditioning for materials like titanium). James is a chemical engineer who has own his Electrolyzer company for decades. Current/Recent Role: VP, Technical at MetCon, LLC. He is part of the executive/C-suite team. The company, founded around 1999 and Native American-owned (Lumbee), has grown significantly with projects across the Carolinas and beyond. It emphasizes metal-framed construction, energy-efficient/positive buildings (including pioneering examples like the first energy-positive school and utility facility in certain regions), and has received recognition as a top minority-owned construction firm

He will head up our Electrolysis research labs