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index

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Infinity Turbine
LLC

Waste Heat to Energy and Renewable Energy by Infinity Turbine

Structured Data

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server farms, bitcoin mining, hot geothermal, marine, diesel generator waste heat, gold mining, and other uses from  
31C (88F) and above. Now also developing GTL gas to liquids modular processors to convert CO2 into fuels for the  
XPrize on Carbon Removal sponsored by Elon Musk."  
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Infinity Turbine develops and researches Waste Heat to Energy Systems and Technology for utilities, server farms, bitcoin mining, hot geothermal, marine, diesel generator waste heat, gold mining, and other uses from 31C (88F) and above. Now also developing GTL gas to liquids modular processors to convert CO2 into fuels for the XPrize on Carbon Removal sponsored by Elon Musk.



PDF Version of the webpage

This webpage QR code

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Introducing the Infinity Turbine Products

Infinity Turbine develops and builds systems for making power from waste heat. It also is working on innovative strategies for storing, making, and deploying energy.

Please see our complete product line by clicking on the link below.

All turbine and system plans are \$10,000 USD. This includes a license to build one set. Unlimited build license packages are available. This allows you to economically build one turbine or system and try before you invest in a unlimited build license.

These include Organic Rankine Cycle and CO2 Rankine Cycle. The ROT (radial outflow turbine) operates on a single rotor with multiple stages to direct drive a 50/60 hz AC generator, no gearbox required, and is optimal for Organic Rankine Cycle (ORC) applications.

- Producing The World's Smallest CO2 Rankine Cycle Demonstrator
- Use 95 Percent Of The Worlds Available Waste Heat For Fuel Source
- Turbine and Maker Plans Download
- Developing EFA Electrostatic Turbine
- Developing TriboElectric Power - No Moving Parts



Infinity Turbine GTL Module \$150,000 Experimenters Platform

Infinity is now offering an experimenters platform for those who wish to develop liquid or gas CO₂ to plastics and alcohol fuels. Inputs: CO₂, H₂O, DC electricity, and Nafion or other membrane catalysts.

Our journey into CO₂ to fuels started in 2004 along with John Stevens (investor) when we started Ocean Ethanol LLC. Back then we looked at using a Fischer Tropsch catalyst to convert CO₂ and H₂ into fuel grade ethanol and methanol. Hydrogen was problematic (too expensive to produce) so we looked at reversing a methanol fuel cell (electrolyzer). The project was shelved in 2005. But with renewed interest in the XPrize, we are now looking at adapting our developed Supercritical CO₂ Systems to work with a reverse fuel cell (RFC) using Nafion.

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Need Strategy? Use our Consulting and analyst services

Infinity Turbine LLC is pleased to announce its consulting and analyst services. We have worked in the renewable energy industry as a researcher, developing sales and markets, along with many inventions and innovations.

Sold as-is and provided on a best efforts basis. All time is documented and a summary log will be provided when requested. Unused credit may be used for a period of six months after invoice date. Consulting is provided via telephone, email, or other media as agreed to in writing (email). Minimum billing is 30 minutes, so it is recommended to have questions, support, and consulting for at least that period of time. References available.

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Xprize

\$100 MILLION Prize Purse: XPRIZE Carbon Removal is aimed at tackling the biggest threat facing humanity - fighting climate change and rebalancing Earth's carbon cycle. Funded by Elon Musk and the Musk Foundation, this \$100M competition is the largest incentive prize in history, an extraordinary milestone. Any carbon negative solution is eligible: nature-based, direct air capture, oceans, mineralization, or anything else that achieves net negative emissions, sequesters CO2 durably, and show a sustainable path to achieving low cost at gigatonne scale.

Our Strategy: Harvest CO2 from the most plentiful source, the sea (where CO2 is most concentrated). This is done by a new gas leverage turbine called the Sea Merlin Engine.

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Waste Heat to Energy:

List of selected waste heat to energy publications.

Waste Heat to Energy is a renewable energy field which deploys technology to utilize industrial, commercial, and home based heat which would otherwise be unused, to make power. Since much of the quality of this heat is low, efficiency to capture and convert to power is also low. This makes the most sense (payback) where utility (grid-based) power rates are at or above \$.15 per kwh.

Keywords: wood pellets, silo, smoldering fire, explosion, carbon dioxide, static electricity, steam, electrostatic charge, supercritical CO₂, subcritical CO₂, liquid CO₂, lithium ion battery electrolytes, lithium ion battery, recycling, radial turbine design, waste heat recovery, Wasteheat, heatrecovery, thermoelectricgenerator, electricitygeneration, tribo effect, TENG, Triboelectricity, triboelectric materials, thickness layer, contact surface area, Organic Rankine Cycle, Power Generation, Energy System, Design, Build, Capstone Turbine, Microturbine, Binary Power Plant, Organic Rankine Cycle, Matching and Optimization, Two-phase Geothermal Resources, High Enthalpy, Recuperator, Geothermal Comb



Surplus Parts and Systems for Sale

Surplus for sale including full systems, turbines, parts, Swagelok stainless steel fittings, and more...

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About Infinity Turbine LLC

Waste Heat Power: For years we've been hearing requests from customers who would like to use their waste heat to generate power, both on land and marine applications. To meet that demand, we formed Infinity Turbine LLC in 2008 and developed the IT10, the worlds first production 10 kw ORC (Organic Rankine Cycle) waste heat to power generator. New developments in CO2 Brayton Cycle may allow efficiencies to reach 30-50 percent. This is a huge increase from the legacy ORC process which has a system efficiency (bottoming cycle) of 5-15 percent). We now offer a CO2 Turbine Development Platform for educators and energy developers.

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News

All turbine and system plans are \$10,000 USD. This includes a license to build one set. Unlimited build license packages are available. This allows you to economically build one turbine or system and try before you invest in a unlimited build license.

3/12/2021: Adding Bitcoin mining resources for dealing with waste heat and innovative cooling concepts.

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1 MW Infinity Turbine Dual Turbine Module

Infinity Turbine now has available blueprints for a 1 megawatt ORC radial outflow turbine.

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Supercritical CO₂ to treat Nafion for Direct Methanol Fuel Cells

Supercritical carbon dioxide treatment was used to enhance performance of NR212. The microstructure of NR212 membranes was reorganized after the Sc-CO₂ treatment. The treated NR212 membranes showed higher proton conductivity than Nafion 117. The treated NR212 membranes showed lower methanol permeability than Nafion 117. Direct Methanol Fuel Cell (DMFC) performance of the treated NR212 membranes was better than Nafion 117 (2012). The Nafion-grafted-polystyrene sulfonic acid (N-g-pssa) exhibits higher ion conductivity and lower methanol permeability than that of Nafion 115. The N-g-pssa membranes are tested as electrolytes in a direct methanol fuel cell. Compared with the as-received NR212 membranes, all the Sc-CO₂ treated NR212 membranes show higher proton conductivity and better capacity of barrier to methanol crossover. From Fenton test, it can be found that the Sc-CO₂ treated NR212 membranes have better chemical stability than that of NR212 membranes. Therefore, NR212 membranes treated by the Sc-CO₂ method may be promising candidate electrolytes for DMFC applications (2020).



ROT12 Radial Outflow Turbine DC Generator

The ROT12 Radial Outflow Turbine with DC Generator was designed for the IT10 system.

Plans: \$10,000 USD.

Fully built ROT12: \$16,000 USD.

Includes crate and insured surface shipment to North America, and an additional 10 kW PMA generator.

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Producing Alcohol from Liquid CO2

Infinity has already built lots of closed-loop supercritical CO2 systems, and experimented with CO2 cavitation to make a one-moving-part liquid CO2 pump.

Infinity currently sells a cart-mounted portable on-demand supercritical CO2 phase change system for \$150,000 which can be used for the experiments listed below, along with many others. It is a cart which was designed to fit through any standard door, hallway, or elevator and has heavy duty casters for mobility.

We are currently looking for funding to develop the following:

1. On-Demand CO2 to Alcohol: Using our closed-loop liquid CO2 phase change system, adding Nafion in the process to make alcohol. Inputs: Liquid CO2, water, and electricity. About 3-4 kW to make a liter of alcohol (from lab experiments).
2. CO2 to Alcohol with In-Situ Power Generation: Using our closed-loop supercritical CO2 phase change system, produce the power via miniature CO2 turbine generator or static electricity generator (SEG) to power the conversion via Nafion.
3. Spin-To-Liquid (STL): A novel one-step approach to producing alcohol from liquid CO2 using a cavitation device with Nafion. This is a one-moving-part device employing sonochemistry with inputs of water and liquid CO2. Electricity is produced in-situ. Shaft rotation is required to spin the device (this can be done via a electric motor, pressure expanding turbine, or other shaft rotation such as a wind turbine).

You can further our efforts by buying our \$150,000 systems (which we build - and have four in stock) or by considering an investment to fund our development.

Teaser: Why was Nikola Tesla so fascinated with static electricity and spinning discs ? Our guess is that he had already found the worlds best battery - water. The Tesla turbine (while a fascinating pump) was actually a static electricity generator originally designed to charge water. All of his Colorado Springs experiments revolved around static electricity. Power generation and (wireless) transportation was via static electricity.



CO2 to Fuels Experimental Developer Platform Processor

The purpose of this platform is to provide experimentation and development of novel gas to liquids (GTL) technologies for the utilization and mitigation of carbon dioxide.

Infinity is now providing experimental platforms for developing modular cart mounted GTL (gas to liquids) fuel processing from CO₂. Using Nafion or similar catalysts (available in sheets, tubes, pellets, and more), the inputs are CO₂, water, and electricity to make alcohol (ethanol, methanol, and butanol). The selectivity of the output will depend on your formula for the inputs and catalyst.

The Infinity GTL Processor allows you to adjust the flow of CO₂, water, and electricity. The platform also allows you to incorporate and modulate in-situ power production, static electricity generation (SEG), and other unique functions.

The processor platform is available in a completed cart or parts in kit form for developers who want to configure their own system.



Price List For Infinity Turbine Core Products and Services

Please click on the link below for the current price list.

Price list includes:

- ORC Turbine Generator Only
- CO2 ORC Complete Phase Change System
- ORC Complete System
- ORC Turbine and System Plans
- Feedpump
- Manufacturing and Licensing Package
- Feedpump Information
- Infinity Turbine Software
- Infinity Turbine Consulting with QR Code quick-order link
- Infinity Turbine GTL CO2-gas-to-liquids Experimenter Platform to convert CO2 to fuels or ethylene including QR Code quick link to website
- Consulting and Strategy Services

Updated on 7/29/2021

9/24/2021



Page Format

This website is rendered for standard USA printing. Margins are set for 8.5 inch printing. QR codes are for active sites and links. The goal of this functionality is for ease in saving to PDF or printing directly as a brochure. The QR code printed out on each page allows easy access via most smart phones to directly link the website with a simple scan via the phone (most phones now scan QR code under the photo setting, and then take you to the website). This is further extended to equipment businesses where QR code labels can be placed directly on a machine or part for reference and reordering. Essentially, the QR code and website become a E commerce system, all built into one.



Publications

Publications for selected topics including:

- Producing power from waste heat
- Nikola Tesla Patents (complete set)
- Graphene super capacitor
- ROT | Radial Outflow Turbine
- Electronic Turbine | static plasma wings and plasma | electronic turbine propulsion | acoustics | electric propulsion ion and hall thrusters | jet propulsion by microwave air plasma | plasma actuators hingeless aerodynamic control uav and drones



Inventors Resource Page

This section host tools for inventors and innovators that Infinity has developed. We have been using Filemaker since 1992 as a way to organize data. We will make available drawing downloads (CAD/CAM) and Filemaker Solution downloads. Our concept platforms are based on using organization provided by Filemaker.

A Filemaker solution organizes thoughts and ideas, while providing a robust platform to present those ideas, and test theoretical solutions. All downloads are copyrighted by Infinity Electrostatics LLC. You may use the download for personal use, but not redistribute, resell, or make money from them, unless you have written permission or a license from Infinity Electrostatics LLC.

To open and read a Filemaker solution, which we have available for download, you will need a copy of the Filemaker software for your computer, or a Filemaker Go app, for your iPhone, or iPad. The Filemaker Go app is free. Most of our Filemaker solutions are unlocked, which allows you to change layouts, make new fields, tables, etc. Some of our files have guest permission to read data only. If you would like a full access file, please contact us.



Vacuum Kiln for Fast Drying Fresh Cut Lumber in 3 Days

Infinity Turbine with Global Energy are developing DIY plans and kits for kiln vacuum drying lumber. I invented the Global Container Kiln back in 1990 by converting standard shipping containers into dry kilns for the small sawmills. Infinity Turbine has specialized in developing simple pressure vessels and systems with it's renewable waste heat turbine generators back in 2008, and has extensive experience in pressure vessels. It's a natural fit.

Why a vacuum kiln ? Lumber prices are crazy. Homebuilders cannot find quality lumber (supplies are limited), and have turned to buying a portable sawmill, which produces green lumber. For building, that lumber needs to be dried. This is also true for cabinet makers, and other wood craft business.

Our container kiln was a standard dry kiln and could KD (kiln dry) hardwoods in 30 days. That's too long for most.

A vacuum kiln is the answer. Smaller chambers can dry in 3 days or less.



New Development Converting 10L Machines to Produce Liquid Nitrogen and Oxygen

Infinity is now working on converting the 10L extraction systems to produce Liquid Nitrogen (LN₂) and Liquid Oxygen (LOX). These valuable gases can be used for rockets, cooling industrial cutting lasers, and cryogenic botanical extraction. The benefits of a on-demand system for the production of liquid nitrogen and liquid oxygen mean that you're no longer dependent on industrial gas suppliers high prices, transportation, and product shorting.

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