

Fusionsynthesis

We face the most serious threat in history. The focus on climate disruption, sea-level rise, and other environmental issues is a distraction. They are symptoms of a much more serious problem: Energy Depletion.

Dr. DeLuze is an inventor and sincerely believes his company Fusion Energy Solutions of Hawaii, Inc. (FESH) has workable solutions. Further elaboration on the problem will help to understand the solution.

Like a car, the Earth has an energy storage battery, and it's nearly dead as of 2021. A 2015 PNAS study estimates this battery may become fully discharged in approximately 2046, see link below.

A battery is a chemical means of storing electric energy in the configuration of molecules. Only the molecular configuration of the atoms changes, not the atoms themselves. In a charged state a car battery is composed of lead and sulfuric acid. In a discharged state a car battery is composed of lead sulfate and water. Charging a car battery returns the composition back to lead and sulfuric acid.

Earth has a hydrocarbon oxygen battery. In a charged state this battery is composed of free oxygen and hydrocarbons. In a discharged state this battery is composed of water and carbon dioxide. Charging Earth's battery reverts these accumulations of carbon dioxide and water back into free oxygen and hydrocarbons.

We have more people and advanced technology energy demand than plant life and sunlight can accommodate. This high energy demand exceeds the ability of photosynthesis to replenish energy taken from the battery. As a result, the state of charge of Earth's battery has been in decline for over a 1000 years and it's now about 99.2% dead. Most don't realize that water is also a greenhouse gas, for it safely collects in the ocean. Carbon dioxide of itself is not bad, it is just a component part of an accumulating discharged battery. Charging Earth's battery reverts these accumulations of carbon dioxide and water back into free oxygen and hydrocarbons. That this battery is nearly dead is our environmental problem, not the carbon dioxide! Earth's battery just needs to be recharged.

Proposed solutions include wind and solar power, but this will not solve our energy depletion dilemma. The energy density of wind and solar is just too low and they both require fossil fuel for construction. A 6 MW offshore wind turbine needs about 32 years to break even on the CO₂ emitted by just the manufacture of the 100 tons of concrete comprising its tower. The issues are complex, and the environmental cost of manufacturing this "green" equipment is just not considered.

With the magnitude of present energy consumption, for solar and wind to be sustainable, some estimate that over 95% of the world's population would need to be eliminated. However, this assumes the carrying capacity of the system is still the original 500M sustainable population such estimates assume. But we have been in severe overshoot 100's of years, and the present carrying capacity is most likely much smaller than the original 500M sustainable population estimate.

We propose an alternative. Creation of a nonpolluting primary energy source using fusion energy. Over one trillion dollars has been spent on the research, going down what we consider wrong pathways. After 15 years of work, we received US patent 8,090,071 B2 on a new approach to fusion. This path was first taken by Brookhaven and then Lawrence Berkley National Labs and shown operational at Berkley. Berkley just did not have net power gain, but our AC variant promises this highly elusive power gain. This becomes the primary energy source, like the engine in a car.

Also needed is a charger, like the generator in a car. After 8 years of research, a patent on a very selective filter to pull CO₂ from the atmosphere has been received as US 11,420,152 B2 on Aug 23,2022 and filed PCT/US2019/037324 in China, India, Japan, Russia, and the EU. We believe we also have the remaining

answers (subject to future patent applications) for the rest of the solution wherein fusion energy will recycle carbon dioxide and water back into free oxygen and hydrocarbons. Once reaching carbon neutrality, oil companies using existing technologies will be able to synthesize the excess hydrocarbon methane (natural gas) into synthetic heavy oil for safe sequestration in the ground. Storage of concentrated CO₂ is dangerous, for it is a deadly poison. We call this process Fusionsynthesis, and propose to run it parallel to photosynthesis to recharge the Earth's biomass energy battery. There is sufficient deuterium in the ocean to support ten billion people for over four trillion years using Fusionsynthesis.

This research is critical, for no matter which study you use, we have no more than about 25 to 100 years of useable energy left. Then its total, not partial extinction, as proposed by the schoolgirl Greta. Watch our ten-minute video on how our new reactor works compared with the current state of the art. Included is a description of the Earth's energy photosynthetic pathway that now must be supplemented by Fusionsynthesis for continuing survival. Merely obtaining fusion is not sufficient, the energy needs to be accessible in useable biomass. Visit our website at: www.fusionenergysolutions.net

The following two articles are presented as an example to point out the brutal truth about energy depletion and are not for the faint-hearted. Read both of them. They illustrate the point made above: Merely obtaining fusion is not sufficient to solve energy depletion. We also need a charger converting energy to biomass. The biosphere battery needs to be recharged...This means Fusionsynthesis. This is the recharging plug! Andrew Nikiforuk in The Tyee wrote The Earths Battery Is Running Low: <https://thetyee.ca/Opinion/2015/08/10/Earth-Battery-Running-Low/>

Stating: "We've drained our planet's stored energy, scientists say, with no rechargeable plug in site." In his review on an article presented in the Proceedings of the National Academy of Sciences: <https://doi.org/10.1073/pnas.1508353112>

Nikiforuk States: "Although the battery metaphor made headlines in leading newspapers in China, India and Russia, the paper didn't garner "much immediate attention in North America... That's a shame because the paper gives ordinary people an elegant metaphor to understand the globe's stagnating economic and political systems...Eventually, without sufficient living biomass to run the biosphere, it simply doesn't matter how much oil, solar, nuclear, etc. energy you have, as there is no biosphere left for humans to use it. Biomass is not an interchangeable energy. There is no replacement and we are depleting it rapidly."

The state of battery charge reported above is approximated by the Ω value in Fig. 5. The slope from 1980 to 2000 is a $-\Delta 22.3 \Omega/\text{year}$. Ω approximates 0 in 2046. There is uncertainty with these figures, but most studies have similar findings.

We face the most serious threat in history. FESH is globally most likely the only firm attempting to provide a complete solution. Over the last 2000 years humanities rate of energy use has exponentially exceeded the rate that it is replenished by photosynthesis. The components of the 99% discharged battery have accumulated in our atmosphere and oceans resulting in the symptoms of climate disruption, sea-level rise, and other environmental issues. At the present rate of energy consumption, the Earth's energy battery becomes dead as shortly as in 25 years. Humanity then goes extinct. Only high rate recharging by Fusionsynthesis, or its equivalent, will be able to stop the discharge and then start a gradual recharge of the Earth energy battery. Recharge will normalize the carbon balance, eliminating the symptoms of climate disruption, sea-level rise, and other associated environmental issues.

FESH is a small startup with critical intellectual property. We need your financial help and support. This is going to take everyone's help and will become the largest worldwide project in history in-order to succeed. Our biggest hurdles are adequate funding and time.