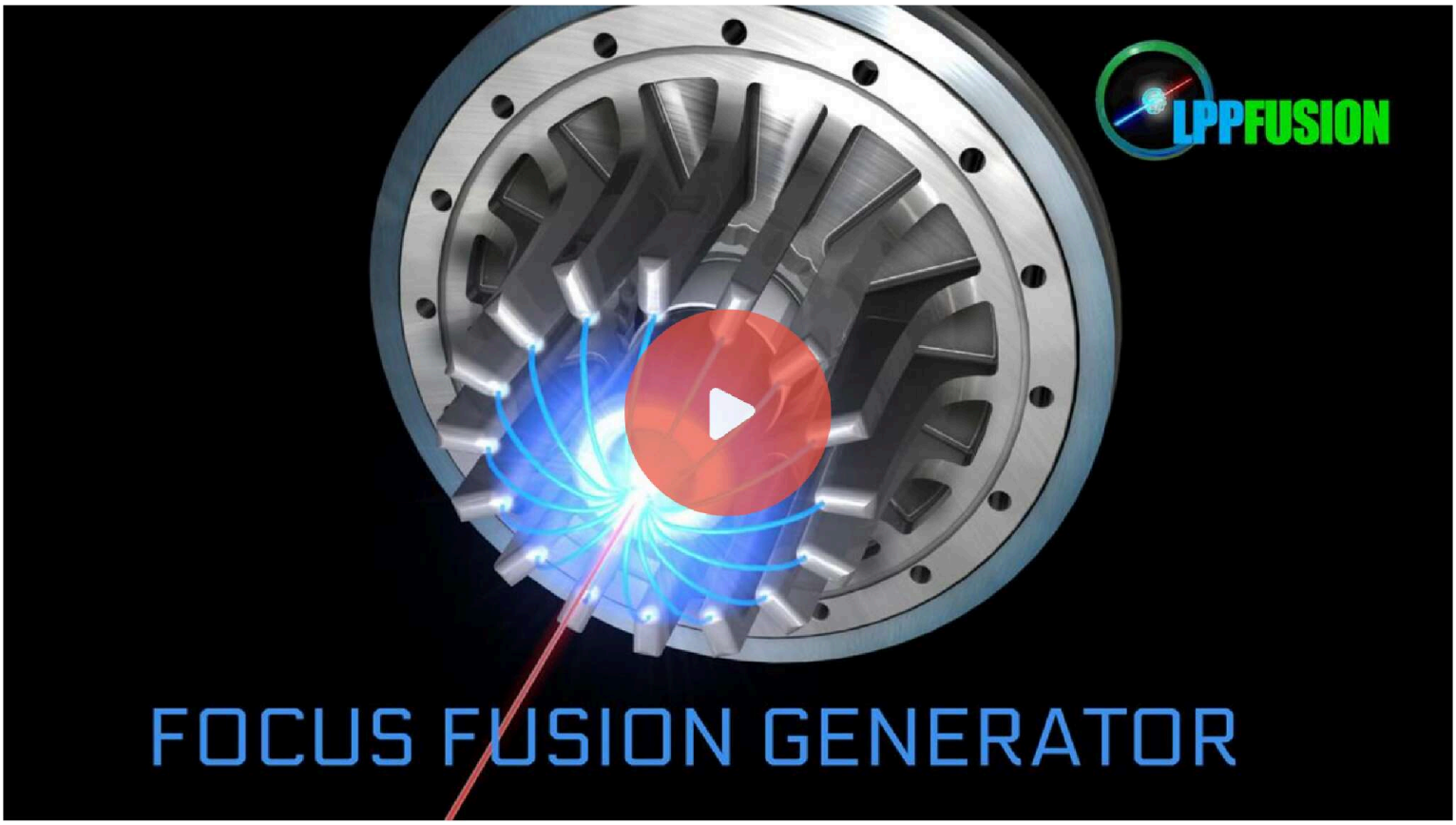


PITCH VIDEO INVESTOR PANEL

INVEST IN **LPPFUSION**

Good Bye Fossil Fuels - Hello Fusion Energy!

lppfusion.com Middlesex, NJ

Technology Female Founder Climate Change Energy Science & R&D

Highlights

1. Fast route to replace fossil fuels with cheap, zero pollution & zero nuclear waste fusion energy.

2. Highest ratio of fusion energy out to energy in of all private fusion companies, per our research*

companies, per our research

3. Achieved the highest confined temperature (2B+) of any fusion experimental device, per our research*

4. Patents issued in the US, China, Australia, Canada and the EU, with patent pending in India.

5. Raised over $10 million from over 2000 investors.

6. Highest plasma purity of any fusion experiment, per our research*

7. *See our published research: https://link.springer.com/article/10.1007/s10894-023-00345-z

Featured Investor

Robert Embry
Syndicate Lead

Follow

Invested $40,900

"We are investing in LPP Fusion because they are leading the way to the inexhaustible, inexpensive, clean and safe energy source that the world urgently needs. With only millions in investment, we believe they have made more progress than projects with billions and that they are closer to the goal of producing net energy than any other private fusion company. The generators that they are developing would provide decentralized, reliable and secure energy that can reach everyone in the world, completely replacing fossil fuels and freeing up trillions of dollars in annual energy costs for other uses."

Our Team

Eric J. Lerner President and Chief Scientist

A leading physicist in dense plasma focus research for 40 years. Eric developed an original model of the role of the quantum magnetic field effect and has pioneered in the application of astrophysical results to fusion energy research.

Ivana Karamitsos Chief Information Officer, Communications Director

Ivy has been with LPPFusion for twelve years. She manages IT work, directs the company's PR and communications, and writes and produces diverse media content, including videos and website development. Ivy graduated Computer Science at Binghamton SUNY.

Dr. Syed Hassan Research Scientist

Dr. Hassan, a plasma physicist, has more than 20 years experience with the dense plasma focus device. Before joining LPPFusion in 2015, he worked for Purdue University's School of Nuclear Engineering.

Rudolph Fritsch Mechanical Engineer, Secretary

Rudy has been President of Allsteel, a manufacturer of industrial metal-forming equipment, for 15 years. As an engineer and entrepreneur, he ran a successful family business in Canada for decades.

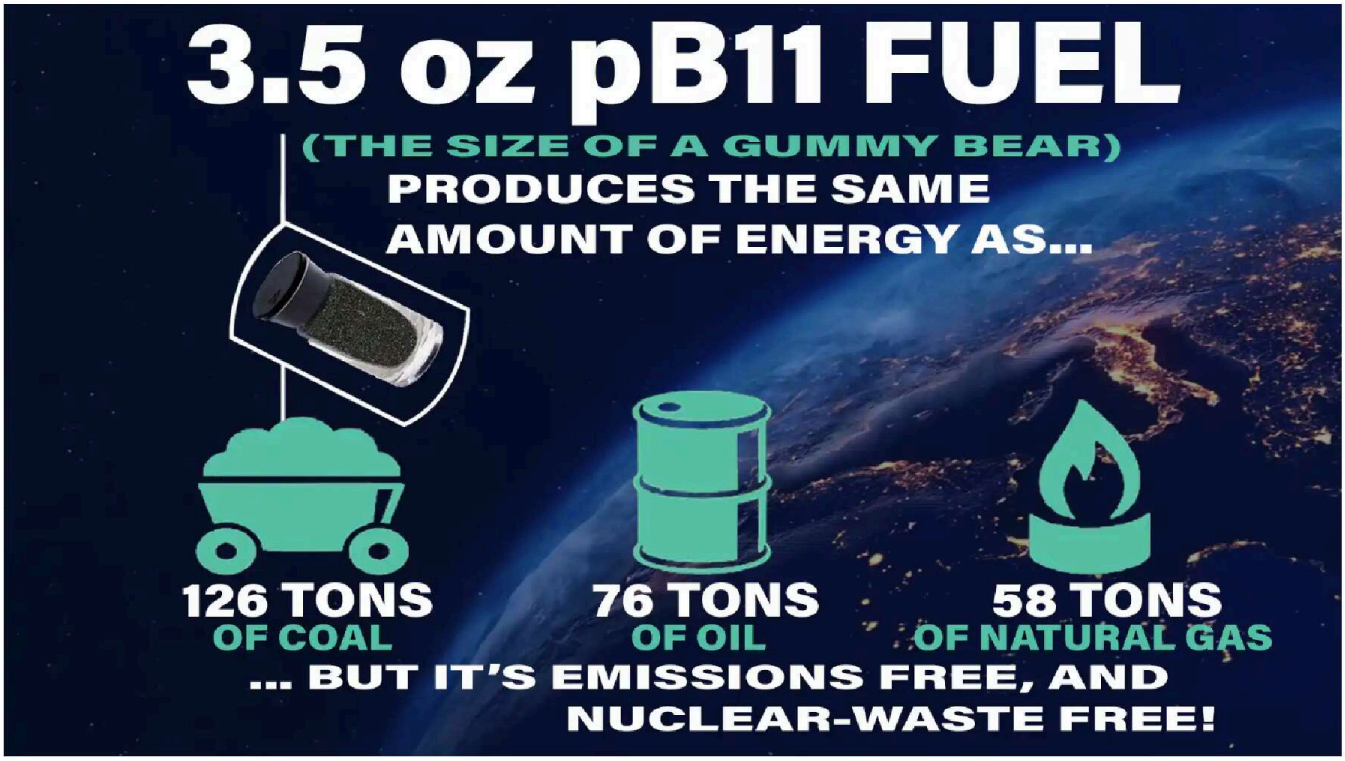
Dr. Warwick Dumas Simulation Researcher

Warwick earned a Ph.D. in Applied Mathematics from the University of Leicester before joining LPP in 2012, where he simulates the plasma filaments that form when the capacitor banks are discharged.

Dejan Simurdic IT Adminstrator

Dejan is a Software Developer/Data Analyst with over 13 years of experience. He worked in multiple industries and in over 20 different coding and database platforms. He was born in Serbia and spent 3 years in Africa before coming to the US.

Fusion Energy - A Pollution-Free Economy and Prosperity For All



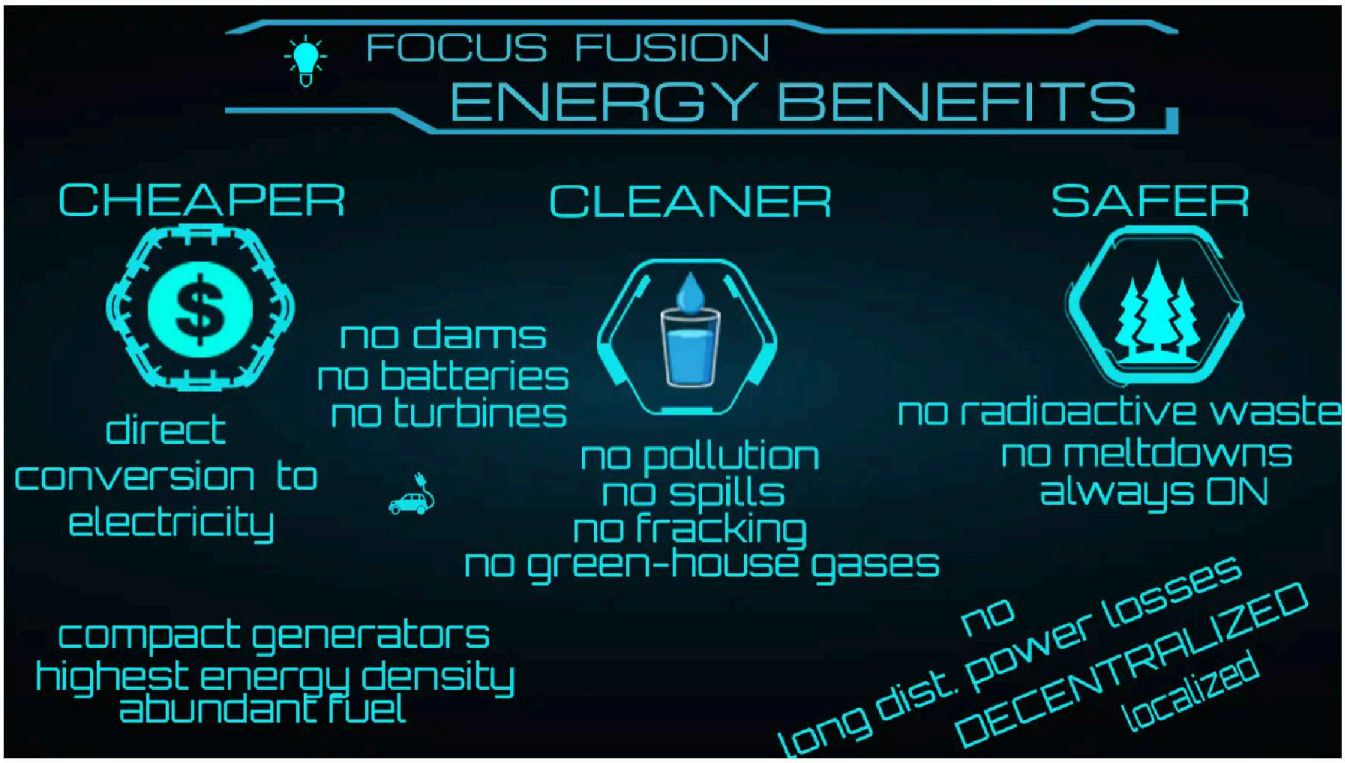
Fusion energy has the potential to entirely replace fossil fuels. LPPFusion is on a fast path to developing nuclear fusion generators that we predict will produce safe, clean, unlimited energy, **far cheaper energy than any present-day energy source.** We call our technology **Focus Fusion.** We predict it can solve our global environmental challenges and at the same time lift the standard of living for all. We anticipate our Focus Fusion generators will:

- Use **pB11 fuel** that produces **ZERO RADIOACTIVE WASTE**
- **Produce only Helium** as the by-product of our fusion reactions
- Have pB11 fuel sources, **hydrogen and boron**, that are essentially **unlimited**. They come from regular water, seawater, and boron deposits, and are enough to **last billions of years.**
- **Decentralize the power grid** and reduce dependency on the fragile grid system.

Once developed, our **patented, small** Focus Fusion generators could save

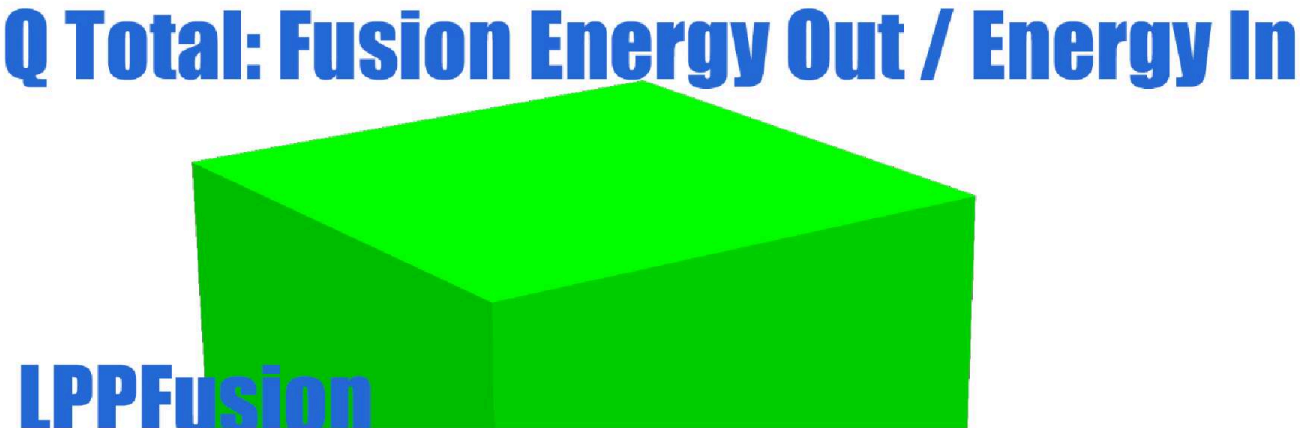
trillions of dollars annually in energy expenses, subsidies, environmental cleanups and health related costs.

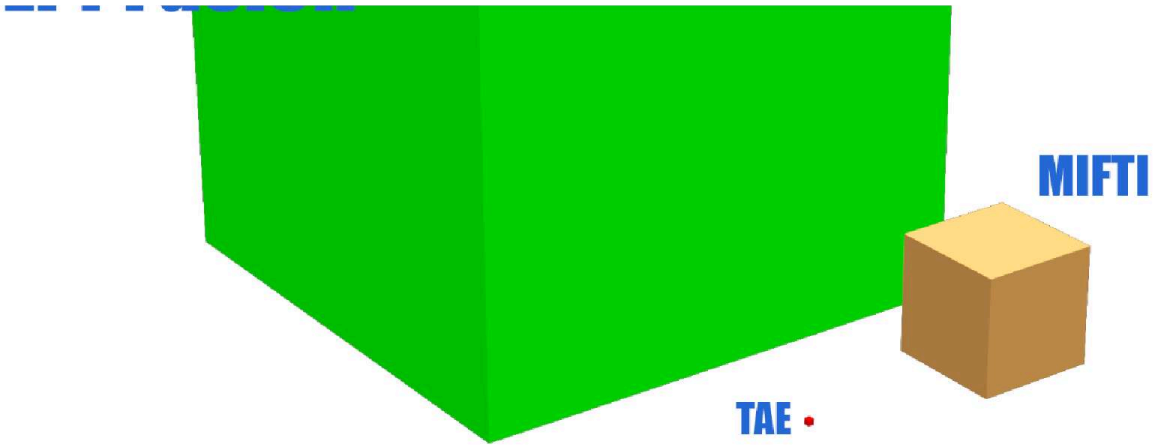
Future projections are not guaranteed.



WE ARE ON THE FAST PATH TO FUSION ENERGY

Our published, peer-reviewed experimental results are far ahead of any private fusion company in wall-plug efficiency (per our published research here). All fusion research efforts aim to get more energy out of a device than is put into it, a condition known as **Net Energy**.





The volume of these cubes compares **Q Total values** or "Wall - Plug efficiency", the ratio of fusion energy out of device to the total energy into the device, or

Q total = (fusion energy out)/(total energy into the device)

In March, 2023 **we published a paper** in a special issue of the *Journal of Fusion Energy* showing that we led all fusion companies in key experimental results, achieving" **the highest ratio of fusion energy generation to device energy input (wall-plug efficiency).**" The paper also demonstrated that, compared with all fusion projects, including the giant government ones, we've achieved "the highest confined ion energies of any fusion experiment (>200 keV) as well as, recently, the lowest impurities of any fusion plasma."

We are 80 times ahead of MIFTI and **600,000 times ahead of TAE,** the only two other fusion companies that have published fusion results using the same experimental deuterium fuel. **HB11**, another fusion company, has run experiments with the same pB11 fuel that we intend to use, which is much more reactive than deuterium. But so far they have only achieved half the ratio of MIFTI, less than 1% that of LPPFusion. Other well publicized fusion companies, like **Helion, Commonwealth Fusion and General Fusion** have published no fusion yield results at all.

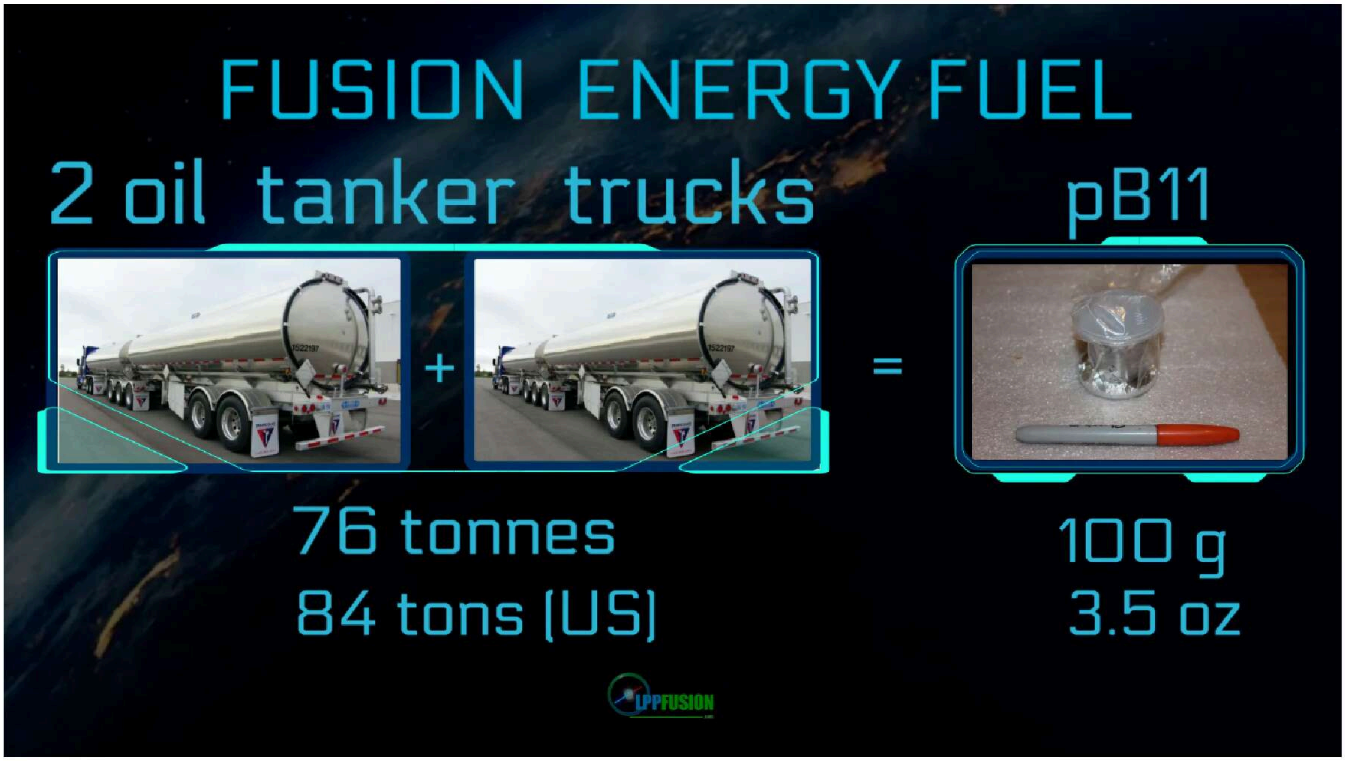
With just **$10M** in funding, we are only 30% behind the deuterium results of the giant government projects like **JET** and **NIF**, that have spent $4B and $20B respectively. The race is far from over and we still have to take big steps to reach more energy out than in, but right now **we are in the lead of all private companies!** That is not just us talking-- last **November the International Business Times reported that LPPFusion leads** private fusion companies in results.

Last year, we made big strides forward. We successfully **completed the development of our new dual switches**—a task that had taken us three years. With the new switches, we achieved a **40% increase in peak current to 1.8 million amps, meeting our goals and doubling the energy available to produce fusion. This broke the record for any device of our type for efficiency of energy transfer.**

If we can get adequate funding--$2 million this year—we anticipate we can reach Net Energy in 2025. If we then get funding of about $150 million for the much larger engineering development stage, we can produce a working prototype generator by 2029—fusion energy in this decade!

We previously anticipated reaching net energy in 2024, but without raising the $2 million necessary we were unable to reach it. We now expect to reach that point in 2025, given we raise the necessary funds. We also previously estimated needing $100 million for the development and engineering phase, but have updated this number to $150 million to correct for multiple years of inflation.

Projections not guaranteed.



FUSION pB11 FUEL & ENERGY DENSITY

The industrial revolution was powered by switching from wood as the main energy source to fossil fuels. Just as fossil fuels lifted the global standard of living because their energy density was far higher than energy from wood, **fusion energy**, with **millions of times higher energy density** can **revolutionize human society, providing a decent standard of living for every person, while maintaining a sustainable global ecology.**

The **pB11 fuel** that our generators will use has the HIGHEST **ENERGY DENSITY** of all known energy sources, so Focus Fusion energy is millions of times more powerful than fossil fuels. Global energy needs could easily be met with ***thousands of tons*** of pB11 fuel per year, ***not billions of tons*** of fossil fuels.

Our views on pB11 have passed peer-review. In November, 2023, we published in a special issue of *Physics of Plasmas* **a paper** showing that "the approaches that combine hydrogen-boron (pB11) fuel with high-density plasma have an easier, less resource-intensive path" to economically practical fusion energy. **This fastest route of course includes LPPFusion's own approach using pB11 fuel and the dense plasma focus device.**

GOOD BYE FOSSIL FUELS

Fossil Fuels pollution kills 7 million people annually. This pollution has contributed to the pandemic by weakening the resistance of the population and diverting vital resources away from health services. The profits from fossil fuels concentrate resources into the hands of a few thousand **"oiligarchs" who control both the global petroleum and the global financial companies.** With Focus Fusion, this drain could easily be redirected toward **health, education and housing while providing new jobs, and clean environment.** Drinking water shouldn't be a luxury. To understand why **Focus Fusion can FULLY replace fossil fuels** see this video!

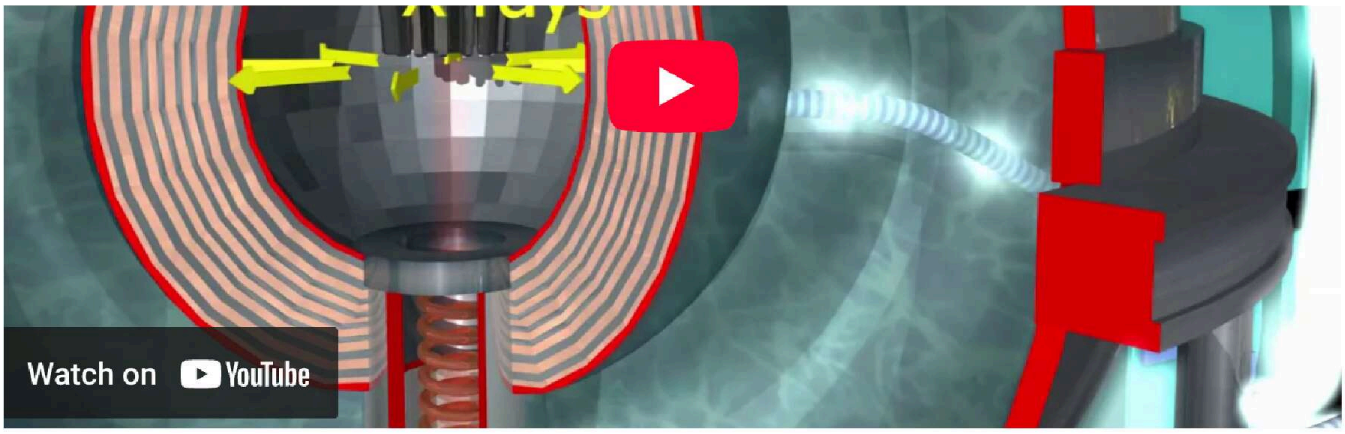
HOW FOCUS FUSION WORKS - VIDEO

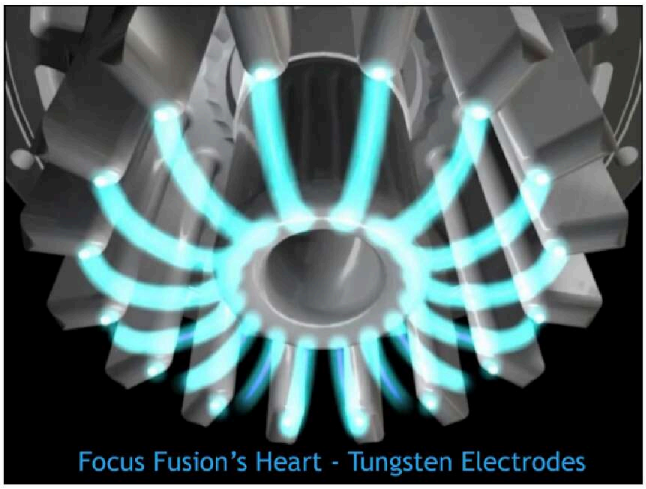
Focus Fusion Electrodes View From The Bottom, Through The Vacuum Chamber (during assembly)

DIRECT CONVERSION TO ELECTRICITY

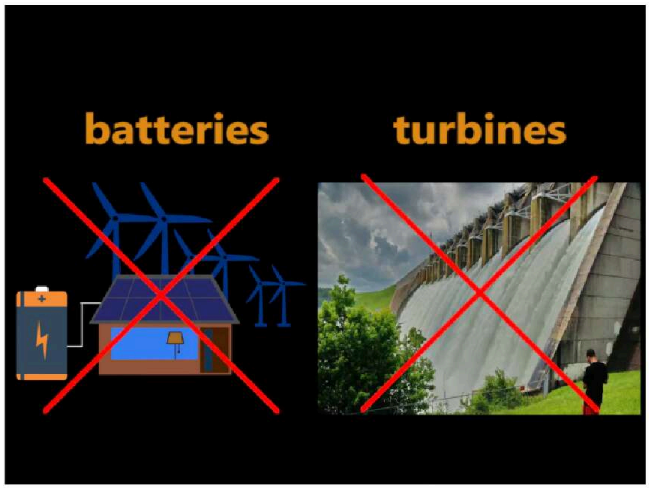
Since Edison's time, there's been one main way to produce electricity. A heat source — whether it's coal, oil, or nuclear fission — boils water to produce steam that spins the turbine of an electric generator.

Our Focus Fusion generators will be different · Free of expensive turbines and generators, we will produce electricity in a fundamentally different and much cheaper way than previous energy sources. The energy from fusion comes out of the same process that powers the sun and is released in the form of a high-energy, **electrically-charged beam of helium nuclei**. This **electric energy is captured by an electric circuit** by allowing the pulsed beam to generate electric currents through a series of coils, similar to how a transformer or a particle accelerator in reverse works. The process of induction used here has been employed in electrical technology since the 19th century — we've just figured out an efficient way to harness it.

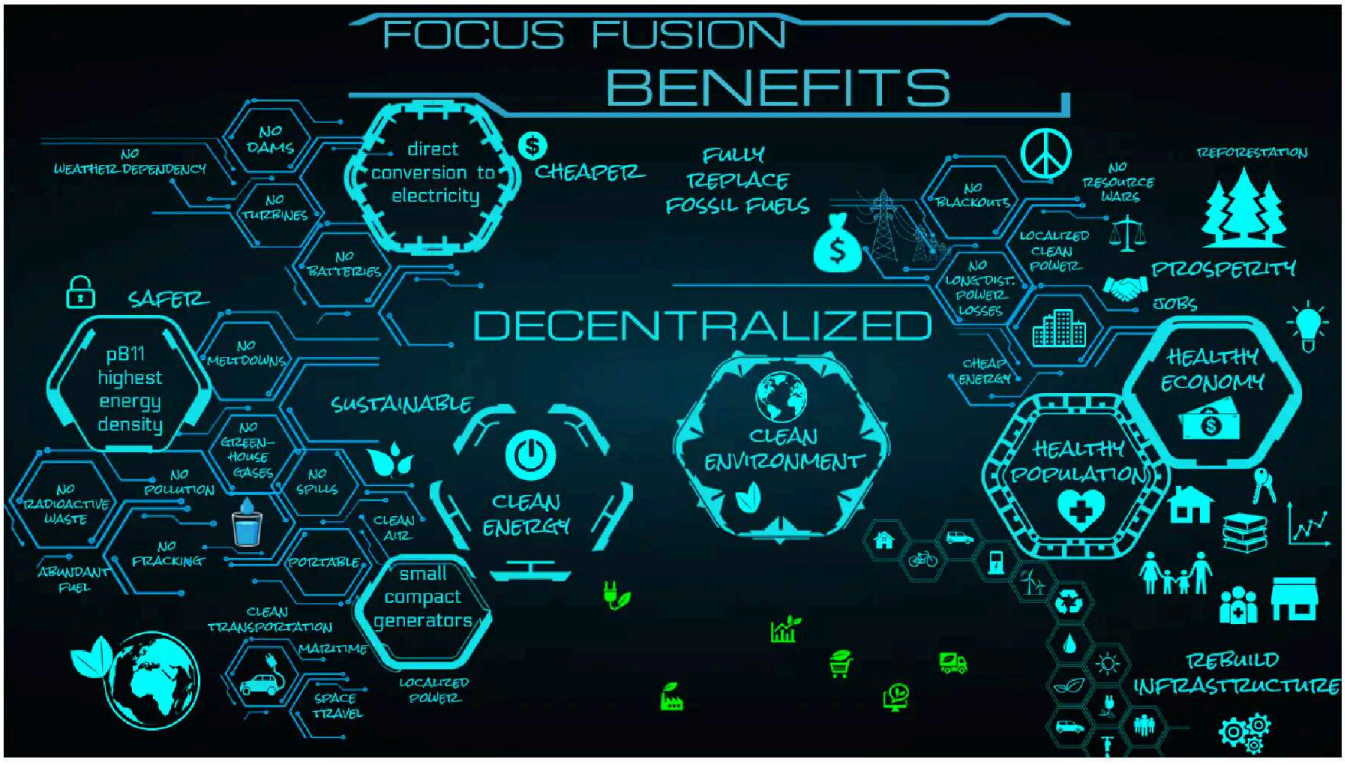




This conversion to electricity can be highly efficient, probably around 70%, and fuel costs will be negligible, as a 5 MW plant will require only 10 pounds of highly-attainable hydrogen-boron fuel per year.



A 5 MW Focus Fusion generator, which will not require expensive turbines, will cost around $300,000 and produce electricity for less than half a cent per kWh, ten times less than the cheapest current technology.



WHY IS LPPFUSION DIFFERENT FROM OTHER FUSION COMPANIES

We've chosen a far easier path than that pursued by the big government-backed fusion energy research and development efforts. They are trying to stabilize the natural instabilities — wiggliness — of the extremely hot, electrically conducting plasma where the fusion reactions occur. Our strategy is to **use these natural instabilities of plasmas to produce energy, instead of fighting them**. And we use a different fuel, hydrogen-boron (pB11) fuel which produces no radioactive waste. This allows us to use the dense plasma focus or **DPF device**, that is so small you can hold its heart - the electrodes - in your hands. The DPF device was invented in the 1960's by **other fusion researchers** but we've improved it.

WHY SOLAR & WIND ARE NOT ENOUGH

Dirty

Fossil fuels, producers of carbon and smog, still power 81% of the U.S. energy demand.

Expensive

Clean energy options aren't cheap. Wind and solar are still the most expensive ways to produce electricity.

Intermittent

When clean energy solutions fail, like in the absence of sunlight or wind, we're forced to rely on fossil fuels.

Solar and wind **lack the power density** and continuous availability to replace fossil fuels by themselves. That would require covering **20% of the world's land** and strip-mining the ocean bottoms. The amount of land needed for solar and wind farms would take away from lands that we need for **reforestation.** Because the **energy density of wind and solar is very low**, the world simply can not fully rely on these energy sources. This is why, without fusion, we still can't move away from fossil fuels. They remain the main reliable energy sources of today, the base-load energy sources. But fusion energy with pB11 can easily take over as a base-load energy source.

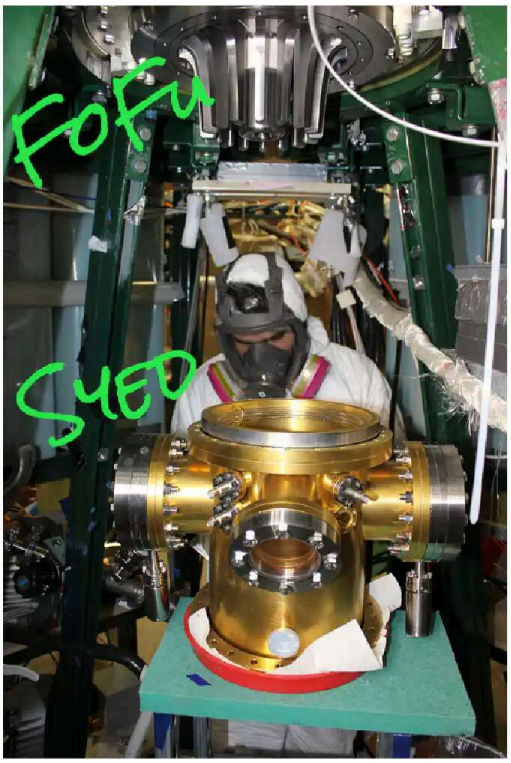
TEAM

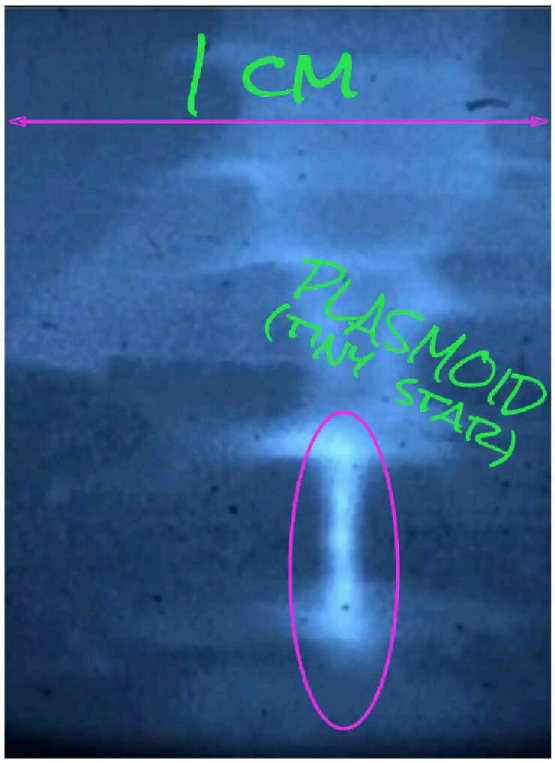
Our team is small but great inventions like the airplane, the transistor, the integrated circuit and the World Wide Web were invented by small teams, not huge organizations. Chief Scientist Eric Lerner, a leading physicist in dense plasma focus (DPF) research for 40 years has pioneered in the application of astrophysics to fusion energy research. Ivana Karamitsos, Chief Information Officer and Director of Communications has had 12 years' experience managing our IT infrastructure and producing the media for our PR outreach. Scientist Syed Hassan, a plasma physicist, has more than 20 years' experience with the dense plasma focus device. Rudolph Frisch, Mechanical engineer and Secretary, has been President of Allsteel, a manufacturer of industrial metal-forming equipment, for 15 years.

Behind our core team there is an army of "invisible" contractors that make our research possible: accounting firms, IT contractors, independent simulation gurus, graphics volunteers, contractors and friends, fans, and family members who do what work they can and offer support. We collaborate with fusion researchers around the world and with astrophysicists who contribute to the plasma theories that are the basis of our understanding of the DPF device. Last but not least we work with Board of Advisors comprised of investors who help us make major business decisions, such as what should be a price of a share.

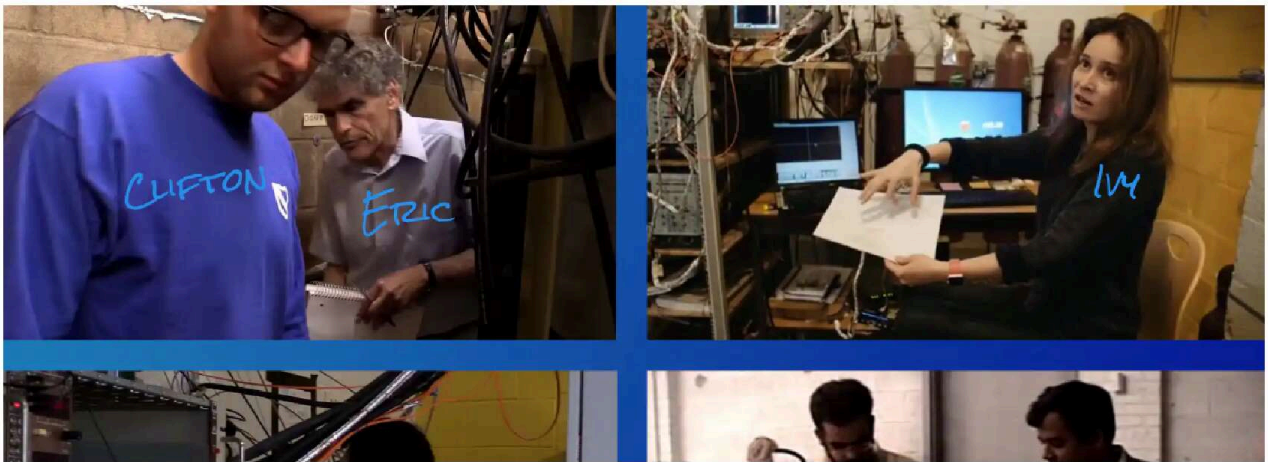
With this team we intend to complete the current research phase, proving we can get more energy out of the machine than we put into it. We plan to build a much larger team, 150-200 researchers and engineers, to develop a research device into a working protoype generator ready for manufacture.

Experimenting in our lab in Middlesex, NJ





Left: Syed working under Focus Fusion Experimental Device; FoFu - nick name for Focus Fusion; Right: ICCD image of Plasmoid, colored.

- 

Team, over the years...

YOUR INVESTMENT WILL MAKE CLEAN FUSION ENERGY REALITY & PLANS DOWN THE ROAD

We'll use our investment round to fund the final stage of our **Phase 1 research that will lead to the demonstration of net energy production.** Your money will be used to finance at least a year of research.

We've proven that we can achieve the **highest confined temperatures** of any fusion device in the world. Our next research step is to prove that we can **produce more energy than we put in**, a goal known as **NET ENERGY**. Success in this Phase-1 research will enable us, with $150+ million in additional government and grant funding, to carry out Phase-2, a 3-year engineering phase that will produce a working prototype generator that will be suitable for mass production. That will lead to Phase 3, rapid commercialization. We will sell licenses to manufacture our generators to large, deep-pocketed organizations, like national power authorities, that can ramp up production rapidly without the need to raise capital. The upfront fees on these license and royalties on sales will be our main income stream

Neither governments nor big corporations are funding this research. But you can.

To fix our broken system, politics alone can not do it. We need fusion energy to build clean economy and prosperity for all.

Usually science research projects of national importance for humanity are funded with tax money. But fusion research does not have 4% of the annual budget of the Apollo program, not a half percent of that of the 2003 Iraq War. Unfortunately our government has not invested in fusion, and certainly not in Focus Fusion. Our budget is $700,000 a year, too little for optimum speed.

If you can not invest today, you will do just as much good for the world by SHARING this page with one person who needs a spark to light their day now.

FLIP THE POWER

Historically, those who ruled society stood in the way of the development of new sources of energy, because **control over power production has always been tied up with political and economic power. New ways of producing power threaten the Powers That Be.** When feudal lords were the Powers That Be, they fought against the use of coal, which threatened their fuel **monopoly** based on the woodlands. But those kings and lords were swept aside by revolutions and new types of societies developed fossil fuel power as the basis of the **Industrial Revolution**. Society went forward and those Powers that Be became the **Powers that Were**.

Powers that Be became the Powers that Were.

Fusion power threatens the multi-trillion-dollar profits of the fossil-fuel industry and of the world financial system, which has been tightly tied to **petroleum** for decades. Now you have the power to decide if the oil, gas and coal barons, today's Powers That Be, will become the **Powers that Were**. By funding fusion, you can **Flip the Power.**