

FUSION IS THE UTIMATE ENERGY THAT POWERS EVERY STAR IN THE UNIVERSE



MIFTI recently announced another record-breaking Fusion Energy test at L3 Harris validated by Lawrence Livermore National Labs with results far ahead of all competition and by far the shortest path to commercialization.

The world's most powerful simulation codes such as Hydra, Flash and MACH2 all predict MIFTI's 10MA Fusion Generator will achieve the Holy Grail of energy called Break Even.



Actual photograph of MIFTI's recent historic fusion reaction very close to energy Break Even and demonstrates extremely stable fusion pulse generating over 100 billion neutrons and temperature over 100 million degrees

INVESTMENT OVERVIEW

There are now about 45 fusion companies, and most, if not all, are private and primarily employ technologies based on Tokomak, Z-Pinch or Laser technologies.

It is the Neutrons from a fusion reaction that make the heat to boil the water that spins the turbines to make the electricity. Without neutrons there is no power and certainly no fusion reaction. Since neutrons are the only thing in fusion energy that count in terms of making energy, perhaps investors might be better served by their consultants if they asked how many neutrons each technology or company can produce, how can it be proven and other critical questions about repeatability, predictability and costs?

MIFTI established an insurmountable lead over competitors announcing their recent neutron results over 100 billion neutrons in a single fusion reaction pulse (shot) (10 to the 11th) at L3 Harris using only 2.53 mega amps of a 4 mega ampere Z-Pinch machine. Dr. Hafiz Rahman, MIFTI President and Chief Scientist, revealed these world record results at the American Physical Society Plasma Physics

Conference in Denver. MIFTI is scheduled to also announce these results at the Fusion Power Associates Conference in Washington, DC this December. MIFTI's neutron results were validated by Lawrence Livermore National Labs.

MIFTI expects to greatly exceed these results in early 2024 when they plan to utilize all 4 mega amperes of the L3 Harris machine.

No other company has ever come close to this power, stability, repeatability, and predictability.

Magneto-Inertial Fusion Technology Inc.
Tustin, CA, 92780

Collaborators



California Institute
of Technology



University of California
San Diego



University of Nevada
Reno



Cornell University
Ithaca NY



Lawrence Livermore
National Lab



Lab for laser Energetics
University of Rochester



Gerald Simmons | Executive Chairman and CEO

- Former President of MOS International, a high-tech company that developed and marketed sophisticated hardware and software.
- Mr. Simmons was an early backer and investor in Polio Vaccine pioneer, Dr. Jonas Salk's startup company, Immune Response; a company founded to find a cure for the HIV virus.
- Mr. Simmons also co-founded Tri Alpha Energy (now TAE), a fusion company, with Dr. Glenn Seaborg (Nobel Laureate) and Dr. Buzz Aldrin (Apollo 11 astronaut).
- Over the years, Mr. Simmons has been instrumental in numerous startups, from inception to IPO and/or sale, including Data Pac Systems and Stamps.com.



Dr. Hafiz Rahman | President and Chief Scientist

- Inventor of staged Z-pinch for thermonuclear fusion energy and radio-isotopes.
- Remained the head of largest space simulation laboratory at UCR since 1986-2000
- Solid background in theoretical, experimental and computational plasma physics.
- Has consistently published papers in international scientific journals and presented lectures on original scientific work at national and international conferences.
- Taught various physics courses in different universities around the world,
- Experienced in working in both industry and educational institutions.

**Arshad Mohammad | COO/CFO**

- Extensive experience leveraging senior level networks in the wholesale and retail and technology industries.
- Worked with Fortune 500 companies
- Previously founded, acquired and successfully exited multiple companies
- Has brought new and innovative solutions to the global marketplace for over 20 years, and is experienced with strategic planning, plant operations, and modern production systems.
- Is capable of managing and running all aspects of new or existing businesses.

**Paul Ney | Vice President and Computational Physicist**

- Has worked in the fields of theoretical and computational plasma physics for 23 years.
- Recently retired as Professor of Mathematics at Mt. San Jacinto College where he taught physics for over 13 years.
- Has authored and co-authored a number of papers that have been published in peer reviewed journals.
- Has conducted original scientific research that has been presented at national and international conferences.

**Dr. Emil Ruskov | Lead Scientist**

- With unusually diverse, nearly three decades long fusion energy research experience..
- His keen interest in making fusion neutrons available for both energy and medicinal radioisotopes production led him from work on conventional toroidal magnetic confinement devices (tokamaks and spherical tori), through linear confinement machines with magnetic field reversal (FRC), to inertial confinement concepts.

MIFTI PATH TO FUSION ENERGY

Current offering of \$10 million is to:

- Achieve Holy Grail of “Net Energy Gain”
- Add many new patents to bolster the existing IP portfolio.
- Design and engineering of the Fusion Research Center of Excellence
- Engage in negotiations with major engineering and construction firms as strategic partners.
- Engage in negotiations with key strategic partners in Medical Imaging to utilize excess neutrons in the production medical isotopes.
- Engage in discussions with strategic partners to utilize excess neutrons in the amelioration of toxic Fission waste.
- Recruit the completion of the internal management team to include major plant design, engineering and construction (the only piece missing from MIFTI’s existing team).

Based on the success of recent scale up testing, MIFTI will move in early 2024 toward a Series A Round expected to be approximately \$350 million. The Use of Proceeds of the Series A will be to accomplish the following milestones:

1. The Design, Engineering and Construction of a 10 Mega-Amp the Fusion Research Center of Excellence, in conjunction with a major engineering, design and construction firm (e.g., Bechtel, Siemens and Westinghouse).
2. Increasing the 10 Mega-Amp capacity further to >16 Mega-Amp AND completing the First Ever Fusion Pilot Plant with 50MW of generation capacity.
3. In partnership with the major engineering, design and construction firm, Complete the Design and Engineering of various modular power plants ranging from 25MW to 400MW.
4. The initial Business Development to develop a customer plant backlog of <10 modular plants plus at least 2 Coal Power conversions (replacing coal with Neutrons as the heating source).

Below is a high-level description of why MIFTI is confident in moving immediately toward the development of the Fusion Research Center of Excellence AND the world's first 50MW Fusion Power Plant, not years down the road, but starting in 2024.

CHALLENGES, SOLUTIONS, AND PATH TO FUSION ENERGY

Embarking on the path to successful Fusion energy production is an ambitious endeavor, one that requires the relentless pursuit of overcoming significant challenges; such as heating, stability, and confinement, while also ensuring a substantial neutron yield to generate the much-needed energy. In this pursuit, **MIFTI stands resolutely ahead of all global competitors** by solving these challenges, surpassing even those who have invested billions of dollars.

Challenges of Controlled Thermonuclear Fusion	
Heating	
Challenge	Reliance on auxiliary heating like; RF heating, Neutral beam, direct current, (>50 million degree C ⁰)
MIFTI Solution	No auxiliary heating needed. shock heating, <u>adiabatic compression</u> through high-Z liner
Stability	
Challenge	MRT, Sausage, Kink and other host of instabilities with no proper methodology to control
MIFTI Solution	Achieved stabilization, mitigation or control by staging
Confinement	
Challenge	Lawson criteria requires for 10 keV DT plasma
	confinement time ~ Several seconds for low density (10^{14} cm^{-3})
MIFTI Solution	We only require 1-10 nano second. ~ 10^{-9} sec for high density ($>10^{23} \text{ cm}^{-3}$)
	MIFTI Achieved Lawson's Triple product n.T.t ~1019 (Kev.s.m3)
Path to Fusion	
Ignition requires trapping of α -particles	
Which requires large enough pV or <u>High value of magnetic field</u>	
In MIFTI's Staged Z-Pinch the magnetic field around the fuseable target plasma grows to 100 mega gauss which can trap the Alpha particles. This leads to ignition.	

Not only has MIFTI solved these challenges but also, through rigorous experimentation and the application of cutting-edge technology, MIFTI has achieved an extraordinary milestone by producing the

Neutron Yield Data	RENO 1 MA		LTD 0.5 MA		I-3 Harris 4MA				MIFTI LTD X-10 (10 MA)				MIF-GEN 50 (16-18 MA)
	Completed		Completed		In Progress				2025				2027
Liner / Target	Argon / DD	Krypton / DD	Argon / DD	Krypton / DD	Argon / DD	Krypton / DD	Zenon / DD	Zenon / DT	Argon / DD	Krypton / DD	Xenon / DD	Xenon / Dt	Xenon / DT
Computer Modeling	10 ⁹	10 ¹⁰	10 ⁷	10 ⁸	10 ¹¹	10 ¹²	10 ¹³	10 ¹⁵	10 ¹³	10 ¹⁴	10 ¹⁵	10 ¹⁷	10 ¹⁹
Experiment	10 ⁹	10 ¹⁰	10 ⁷	10 ⁸	10 ¹¹								

highest neutron yield per Mega-Ampere of any fusion-based entity in the world (greater than scientific break-even). This feat is a testament to the exceptional capabilities of our team and intellectual property. **Confidently expect MIFGEN 15-20 Xenon. DT is 100x better then DD**

The core of our success lies in our now proven path toward the realization of net energy gain. There is a remarkable alignment and parallel between the experiments and the scientific peer reviewed computer modeling. The table above shows how the scale experiments at multiple machines prove the accuracy of the computer modeling in scaling up to net energy gain. Computer simulations using Hydra from Lawrence Livermore National Lab, Flash from the esteemed fusion work at the University of Rochester, NY, and Mach2 from the U.S. Air Force show that MIFTI's patented Stage z-pinch technology will generate an astonishing 10^{19} in neutron yield, far surpassing the threshold required to achieve sustained net gain via Fusion.

By achieving such significant advancements and garnering recognition and validation from multiple highly recognized institutions, MIFTI has successfully demonstrated its transformative technology and potential to revolutionize the energy landscape. The integration of science, innovation, and vision has culminated in the creation of a company that is at the vanguard of the fusion energy revolution, not decades away but today.

The below comparison chart is based on publicly available information from leading fusion energy companies. This shows that MIFTI has the shortest path to nuclear fusion energy and achieved crucial milestone:

Lawson's Triple product n.T.t $\sim 10^{19}$ (Kev.s.m³)

Description	MIFTI	Helion	Commonwealth Fusion Systems	General Fusion	TAE	ZAP Energy
General Approach	Magneto-inertial-Stabilized Z-Pinch	Magneto-inertial-	Magnetic confinement; Tokamak	Magneto-inertial-Magnetized Target Fusion	Magnetic confinement; Field Reversed Configuration	Magnetic confinement; Z-Pinch
Milestones	Achieved Fusion reaction and 1010 neutron yield at 1 MA machine. Multiple code verification for net gain with proposed pilot plant. Tested the idea with LTD which has a significantly small foot print.	Announced reaching 6keV	Completion of high temperature superconducting Magnets	Successfully demonstrated key elements of proprietary plasma compression technology	Achieved 75M+ degrees celcius	Increased power, performance and diagnostics of SFS Z pinches on FuZE prototype core, including operation at 500 kA of pinch current. Built next generation FuZE-Q device, which began operations summer 2022.
Pilot Plant	Pilot plant with net gain 2025. First power plant 2029	Net electricity demonstration -2024 Pilot plant 2030	Net energy gain -2024 Pilot plant 2030	Power plant 2030	Pilot plant with net gain 2025. First power plant 2029	Demonstration plant 2025. Power plant first-of-a-kind plant in 2030
Collaborators	Partial List: University of California San Diego, University of Rochester, Lawrence Livermore National Lab, University Of Nevada Reno, Caltech University.		Partial list: MIT, Brook Haven National Lab, Columbia University, University of California San Diego, University of Rochester, Oakridge National Lab.		Partial list: Google, U.S. National Laboratories, Japan's National Institute for Fusion Science.	Partial list: University of Washington; Lawrence Livermore National Lab; Los Alamos National Lab; Lawrence Berkeley National Lab; University of Nevada, Reno; DOE ARPA-E; University of California, San Diego; Woodruff Scientific.
Funding	\$11 Million	\$577 Million	\$2 Billion	\$300 Million	\$1 Billion	\$200 Million

MIFTI is the first and only fusion energy company to repeatedly achieve stable fusion reactions generating temperatures over 100 million degrees and producing over 100 billion neutrons per pulse. This is an actual photograph of the most powerful fusion energy pulse in history demonstrating remarkable stability that has never been done before.



The fuel is clean and carbon-free and is derived from ordinary seawater at a very low cost. One gallon of seawater is estimated to deliver the same amount of energy as 300 gallons of gasoline.

We invite you to join us on this thrilling journey as partners in shaping the future of environmentally clean, abundant, sustainable energy. Together, we can rescue the planet from the dire consequences of climate change, transcend the boundaries of what was once thought impossible, and usher in an era of unprecedented energy prosperity.

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