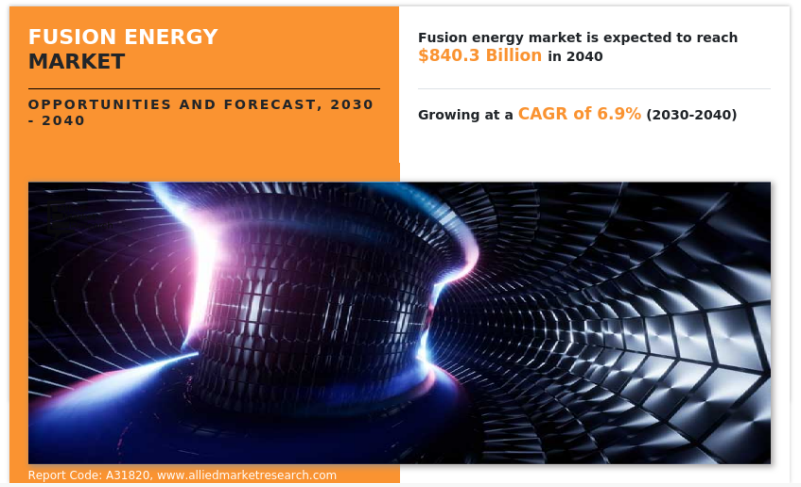
Fusion Energy Market Detailed Insights on Upcoming Trends 2020-2030 | Key Players General Fusion, Helion Energy Inc.

WILMINGTON, DE , UNITED STATES, May 6, 2024 /EINPresswire.com/ -- The demand for energy continues to rise globally, while the world is searching for cleaner and more efficient energy sources. Fusion energy is one of the most promising options as it offers an abundant and environment-friendly energy source with almost zero carbon emissions. The industry is booming exponentially in the coming years due to increasing investment in R&D work and the development of advanced technologies.



Fusion Energy Market growth

According to Allied Market Research, the global fusion energy market is anticipated to manifest a considerable CAGR from 2030 to 2040.

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Recent Trends -

Several countries, including the US, China, South Korea, and the UK, have invested heavily in developing fusion energy technologies. In 2021, the US Department of Energy (DOE) allocated $325 million for the development of advanced fusion energy technologies.

In addition, a number of businesses are allocating resources towards the advancement of fusion energy technology. For instance, General Fusion, a Canadian-based fusion energy company, secured $107 million in Series E funding in 2021. The company plans to use the funding to develop its Magnetized Target Fusion technology.

Another trend in the fusion energy market is the development of new fusion reactors. In 2020,

the Chinese Academy of Sciences announced that its Experimental Advanced Superconducting Tokamak (EAST) reactor had achieved a new world record by sustaining a plasma temperature of over 100 million degrees Celsius for more than 100 seconds.

Product Developments -

One of the significant product developments in the fusion energy market is the development of fusion energy reactors. There are several types of fusion reactors, including Tokamaks, Stellarators, and Magnetized Target Fusion (MTF) reactors. Tokamaks are the most commonly used type of fusion reactor and are designed to confine plasma using a magnetic field.

Several companies and research institutions are developing advanced Tokamak reactors. For example, the International Thermonuclear Experimental Reactor (ITER) project, an international collaboration of 35 countries, is currently building the world's largest Tokamak reactor. The ITER reactor is expected to be operational by 2025 and will demonstrate the feasibility of fusion energy at a commercial scale.

Another product development in the fusion energy market is the development of MTF reactors. MTF reactors use a compression technique to heat the fuel and create a fusion reaction. General Fusion is one of the leading companies in the development of MTF reactors. The company's Magnetized Target Fusion technology uses a spherical compression chamber and a liquid metal coolant to create a fusion reaction.

Besides, several companies are developing fusion energy software and simulation tools to support the development of fusion reactors. For example, CFS (Commonwealth Fusion Systems), a US-based fusion energy company, has developed advanced software to simulate the behavior of plasma in a Tokamak reactor.

Governments, research institutions, and private companies are investing heavily in the development of fusion energy technologies. The recent trends in the fusion energy market include increasing investment in research and development, the development of new fusion reactors, and the adoption of fusion energy software and simulation tools. The product developments in the fusion energy market include the development of Tokamak and MTF reactors and advanced fusion energy software and simulation tools.

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UKAEA and Kyoto Fusioneering have signed an agreement aimed at developing materials to be used in commercial fusion energy applications-

In a bid to advance fusion technology, Japanese company Kyoto Fusioneering (KF) and the United Kingdom Atomic Energy Authority (UKAEA) have formed a partnership. This collaboration

signifies the joint dedication of both countries to deliver clean and sustainable fusion energy, with an aim to provide long-term benefits for upcoming generations.

The primary objective of the project is to create a silicon carbide composite system (SiC/SiC) that satisfies the rigorous criteria necessary for materials employed in fusion technology. This composite material will serve as a structural element within a fusion device and subjected to simulated fusion conditions to determine its resilience.

SiC/SiC composites can be integrated into the breeder blanket of a fusion reactor, which would enhance the commercial viability and efficiency of fusion power stations by offering a durable material capable of enduring high temperatures and withstanding damages caused by neutrons. The SCYLLA© blanket by KF is specifically designed to operate in conjunction with coolant and fuel-breeding fluids that are based on lithium-lead. Its innovative design incorporates materials that guarantee compatibility with the harsh and corrosive nature of lithium-lead fluids.

To conclude, the development of commercial fusion energy reactors will be a significant milestone in the fusion energy market and will require substantial investment in research and development. However, the potential benefits of fusion energy, including almost zero carbon emissions and an almost limitless supply of energy, make it a promising energy source for the future.

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HB11 Energy Holdings Pty Ltd
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