



FUSION ENERGY

Position Statement

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The American Nuclear Society (ANS) supports a vigorous research and development program for fusion energy. Fusion represents a potential energy source that is sustainable and has favorable safety and environmental features. Like fission, fusion offers the opportunity to generate substantial quantities of energy while producing no CO₂ or other “greenhouse gases” that may contribute to global warming. Even with substantial conservation efforts and improvements in end-use efficiency, the future world demand for energy is expected to increase as a result of population growth and economic development. The timely advent of fusion as a practical energy source may be crucial.

In particular, the ANS believes the following:

1. The long-term benefits of fusion energy warrant a sustained effort aimed at advancing fusion science and technology. International cooperation is a cost-effective complement to strong national programs.
2. Recent scientific progress in fusion research has been encouraging and warrants an enhanced and expanded fusion engineering and technology development program.
3. Based on the continuing success of physics and technology development programs, it appears to be technically feasible to develop fusion energy to the demonstration stage within the first half of the 21st century if funding is increased to a suitable level.
4. The United States should maintain its active role as a full partner in the international burning plasma experiment known as ITER.¹ The ANS also supports vigorous utilization of the National Ignition Facility (NIF) to obtain fusion ignition in an inertial fusion target.²
5. To be commercially successful, fusion must demonstrate social, environmental, and economic attractiveness relative to its future competitors. Fusion must anticipate and meet future regulatory and licensing requirements. Current fusion design studies indicate that fusion could meet these challenges.³
6. Although applications studies for fusion have concentrated primarily on electric power production, there are other possible applications such as hydrogen production and hazardous waste destruction.



References

1. ITER Web Site: <http://www.iter.org>.
2. Lawrence Livermore National Laboratory NIF Web Site: <http://www.llnl.gov/nif>.
3. ARIES Program Web site: <http://www-ferp.ucsd.edu/ARIES/>.

The American Nuclear Society, founded in 1954, is a not-for-profit scientific and educational society of over 11,000 scientists, engineers, and educators from universities, government and private laboratories, and industry.

Position Statements are the considered opinions and judgments of the Society in matters related to nuclear science and technology. They are intended to provide an objective basis for weighing the facts in reaching decisions on important national issues.