

The Need for Deployment of the Next Generation Nuclear Plant Projects

The American Nuclear Society (ANS) supports the Next Generation Nuclear Plant Project (NGNP) established by Congress under Section 641 of the Energy Policy Act of 2005.¹ This project will provide research, development, design, construction, and operation of a prototype nuclear reactor to produce electricity and hydrogen.

The NGNP is intended to be a collaborative effort among the U.S. Department of Energy, the Idaho National Laboratory, and appropriate industrial partners. It is also intended to include international technology exchanges.

The NGNP will utilize what is commonly referred to as a Generation IV design. Generation III designs are the latest reactor designs licensed or certified by the U.S. Nuclear Regulatory Commission (NRC). Generation III+ includes the new designs currently under review by the NRC and anticipated to begin operation during the next 10 to 20 years. Generation IV designs are more advanced and are expected to be ready for commercial construction after 2020. The Generation IV designs may include new or additional features such as the following:

- capability for hydrogen production²
- use of recycled fuel
- use of plutonium and other fission by-products
- a more efficient fuel cycle with lower generation of waste products
- higher safety and physical protection levels
- higher reliability
- better economic performance

The ANS also supports the federal government efforts in support of a robust Generation IV development program in parallel with current Generation III+ efforts.³ Sequential utilization of new or different designs and technologies will ensure ever-increasing safety levels and will help nuclear energy fulfill its vital role in worldwide electricity generation.

References

1. Public Law 109-58, "The Energy Policy Act of 2005.
2. Position Statement 60, "Nuclear Energy for Hydrogen Generation," ANS (2003).
3. Position Statement 56, "Need for Near-Term Deployment of New Nuclear Power Reactors," ANS (2005).