



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

**Integrated Research Project (IRP)
on
Inherently Safe
Light Water Reactor (LWR)**

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IRP on Inherently Safe Light Water Reactor

Scope:

- Large GW-class Light Water Reactor design
- Goes beyond the GEN III+ passively safe designs
- Improved performance and inherent safety compared to current GEN III+ designs
- Also address GEN VI performance goals:
 - Sustainability (fuel utilization and waste minimization)
 - Economics
 - Proliferation resistance
 - Physical protection
- A synergistic design that would make the reactor inherently safe
 - Novel and innovative reactor systems
 - Structures
 - Components
 - Materials, including fuel and cladding
 - Passive features
- Improve the safety goal from “passively safe” (GEN III+) to “inherently safe” which means a reduced likelihood of severe accident consequences



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Outcomes:

- Conceptual design(s) and safety analysis
 - Specifically defined performance criteria
 - Preliminary analysis that would support and justify the development of an inherently safe light water reactor based system
- Research results that prove out key design concepts
- A comprehensive research plan that would move the proposed concept forward
 - Proposed research to address key technical issues
 - The need for and use of experimental facilities to develop critical components and subsystems of the proposed design

Cost and Schedule:

- Three year duration not to exceed \$6.0 million