



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

Small Modular Reactors

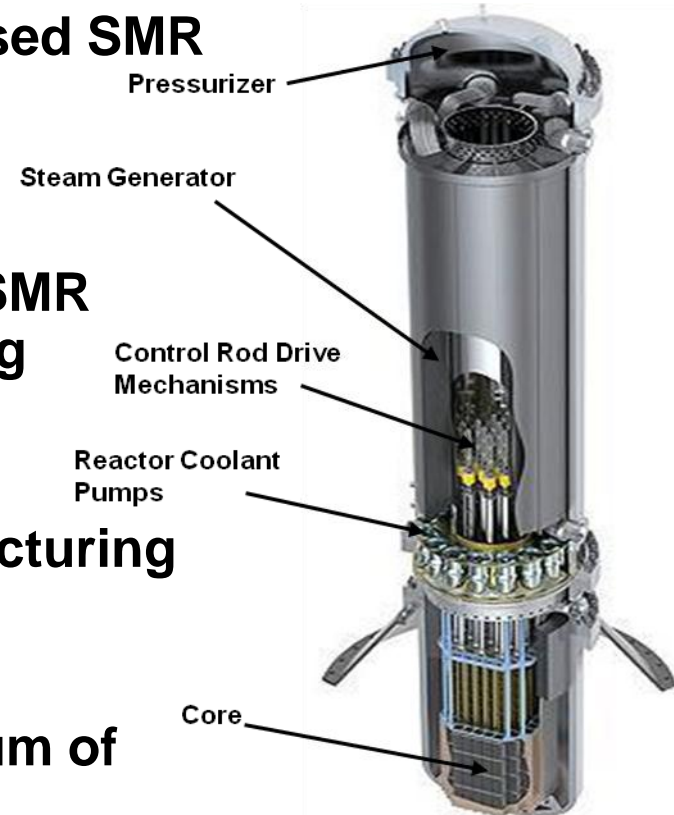
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Goal of SMR Licensing Technical Support Program

- Facilitate and accelerate commercial development and deployment of U.S.-based SMR designs at domestic locations
- Provide financial assistance for design, certification and licensing of promising SMR technologies with high likelihood of being deployed at domestic sites
- Does NOT support procurement, manufacturing or construction costs
- 5 year/\$452 M program; Requires minimum of 50% industry cost share



The US Government wants to support the safest, most robust SMR designs that minimize the probability of any release



Supporting SMR Development Through Public/Private Cost-Shared Funding

- **DOE's initial SMR funding opportunity announcement (FOA) solicited certification and licensing projects from vendor/utility teams with plans for expeditious deployment**
- **DOE determined that it would make a single award under initial FOA**
- **Generation mPower project was DOE's top choice**
 - Selection made on November 21, 2012
 - Cooperative Agreement negotiations have concluded
 - Awards expected to be signed in April 2013
- **Efforts under the initial project will help resolve generic industry regulatory issues and establish the SMR licensing framework**



Already Making Progress on Certification and Licensing Scope

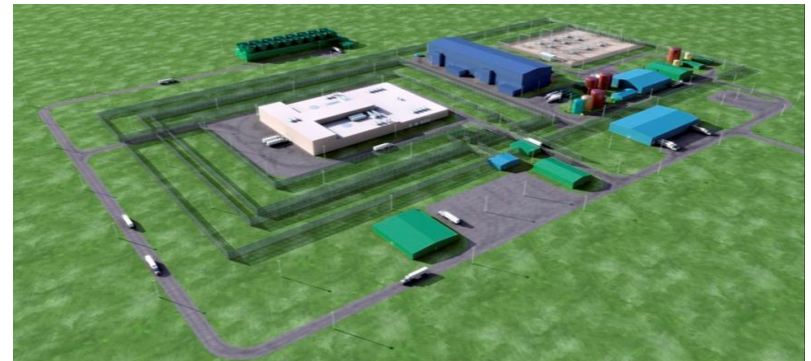
■ mPower Team

- B&W – Design of primary components and systems
- Bechtel International – Design of secondary side and plant layout
- Tennessee Valley Authority – Site characterization and licensing for deployment at Clinch River Site

■ On Feb. 20, 2013, team signed contract to prepare and support NRC review of Construction Permit Application (CPA)

■ Key Project Milestones:

- B&W submits DCA – 3Q CY 2014
- TVA submits CPA – 2Q CY 2015
- TVA submits OLA – 3Q CY 2019



Success depends on quality of application products delivered to NRC to ensure a reasonable review and approval period that can support 2022 deployment goal

Second SMR FOA: Cost-Shared Development of Innovative Small Modular Reactor Designs

- **To increase available pool of innovative domestic SMR technologies, a second FOA will be issued that emphasizes improved technologies**
 - Issue date: March 11, 2013
 - Applications Due: July 1
 - Award(s) made: Target–End of CY
- **Narrows support to design certification only**
- **Intent is to support one additional award, but may support additional designs if warranted**
- **Expands licensing horizon to technologies that can be deployed in 2025 timeframe**
- **Selection most heavily weighted on extent to which SMR design incorporates safety, operability, efficiency, economic and security performance characteristics that exceed capabilities of designs currently certified by NRC**

Design-Independent Support for Licensing and Commercialization of SMRs

SMR LTS program also supporting efforts to improve commercialization potential for overall SMR industry:

- **SMR Utility Requirements Document (URD)** – Cost-shared with EPRI/industry
- **Economics** – Follow-on to University of Chicago study to update assumptions made on cost of money and prices of natural gas and coal
- **Source Term** – Plans to evaluate experimental and analytical efforts required to quantify SMR source terms
- **Safeguards Study** – independent laboratory analyses of LWR SMR safeguards and security design and technical features.