



BWRX-300

One of the most economical SMR designs available

BWRX300

The BWRX-300 is designed to provide clean, flexible and dispatchable electricity generation that is competitively priced as compared to other generation sources. In addition to supplying electricity to the grid, the BWRX-300 has the capability to supply electricity and/or steam for process heat applications, district heating and hydrogen production.

The tenth evolution of the Boiling Water Reactor (BWR), the BWRX-300 represents the simplest, yet most innovative BWR design since GE began developing nuclear reactors in 1955. The result is a dramatic reduction in scale and complexity compared to large reactors, as well as other SMR designs. BWRX-300 is projected to have up to 60% less capital cost per MW when compared with other typical water-cooled SMR and large nuclear designs in the market. The BWRX-300 is designed for significant reductions in operating, staff, maintenance cost, and security requirements.

The key BWRX-300 innovation is its design to mitigate large Loss-of-Coolant Accidents (LOCAs). This innovation enables simpler passive safety systems and a more compact reactor building compared to prior Light Water Reactor (LWR) designs. A strong focus on design-to-cost has resulted in an innovative solution that limits plant volume, concrete and steel, while utilizing the ESBWR's* design and licensing basis to the fullest extent. Traditional support system designs are simplified and scaled down from the ESBWR.

The BWRX-300 utilizes natural circulation and passive cooling isolation condenser systems from the U.S. NRC-licensed ESBWR. Steam condensation and gravity allow the BWRX-300 to passively cool itself for seven days without power or operator action during abnormal events, including station blackout. Indefinite cooling is achieved by the simple action of water addition to the isolation condenser pools.

The reactor pressure vessel and other components can be manufactured in various places outside of the U.S. offering greater supply chain flexibility and assurance of competitive pricing.

The BWRX-300 can be constructed in 24-36 months utilizing modular and open-top construction techniques proven in Japan. The BWRX-300 power plant is approximately 10% of the size and complexity of a large nuclear project; thereby, substantially reducing project risk and total capital cost requirements.

Key advantages

- World-class safety
- Designed to be cost-competitive with other generation sources
- Up to 60% capital cost reduction per MW
- Leverages licensed ESBWR design —expected to significantly improve licensing certainty in new countries
- Mitigates large LOCAs
- 7 days of passive standby cooling
- Utilizes common construction techniques
- Requires only limited on-site staff and security



*Economic Simplified Boiling Water Reactor - 1520 MWe Generation III+ boiling water reactor

Learn more at nuclear.gepower.com