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BWRX-300 Small Modular Reactor | GE Hitachi Nuclear

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12–15 minutes

Why GE Hitachi?

A world-leading provider of grid-scale SMRs

GE Hitachi (GEH) has more than 60 years of experience in BWR (boiling water reactor) licensing, fuel, design and manufacturing, and building supply chains. Today, we continue boldly innovating to provide reliable, carbon-free, new nuclear power to the world.

60+ years

designing, deploying, servicing and fueling reactors globally

First

commercially owned nuclear plant to supply power to the general public

67

GE reactors licensed in 10 countries

165,000+

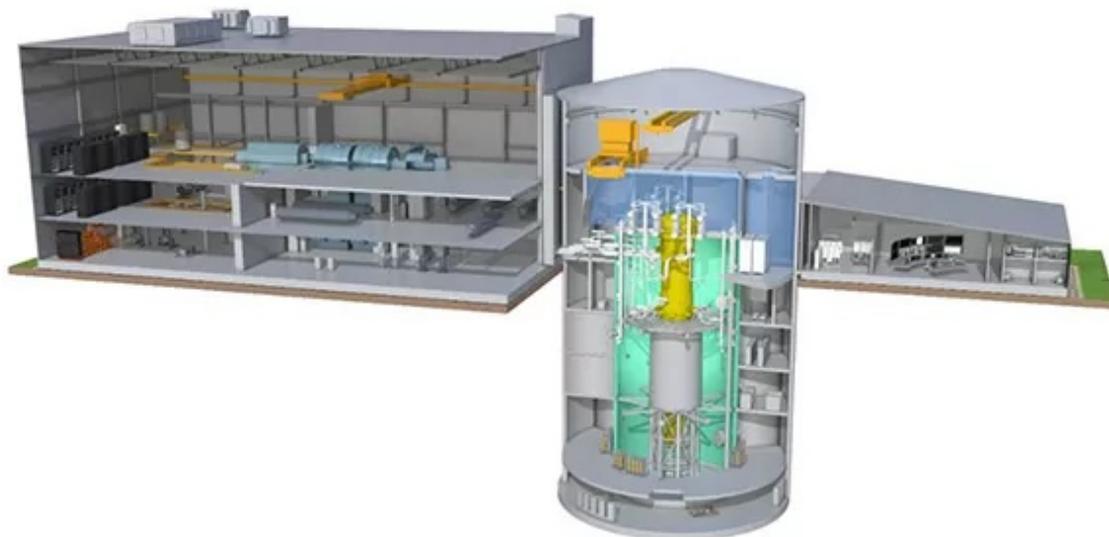
bundles of BWR fuel designed and produced over the last 60+ years

6,660+

patents issued worldwide

Why nuclear?

Clean, compact, sustainable power



Always available

Decarbonizing the power generation industry is crucial to reaching net zero emissions. While the future of energy will be a mix of power generation technologies, low-carbon

power sources like solar, wind and hydro aren't always available. Nuclear power plants operate at much higher capacity factors than renewable energy sources, making them a highly available power source for customers concerned about energy security.

Why the BWRX-300?

Innovative, simplified, and cost-competitive

Powered by proven and commercially available fuel, the BWRX-300 features an innovative and simplified configuration, resulting in less concrete and steel needed for construction. The BWRX-300 is a cost-competitive solution that can be deployed for electricity generation and industrial applications, including hydrogen production, desalination, and district heating.

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300 MW carbon-free power

Ideally sized for plant conversion from coal to nuclear

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Innovative configuration

Simple and innovative with digital offerings that lower costs and improve safety.

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Competitive cost

Less capital cost per MW when compared with typical water-cooled SMR.

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Proven & reliable fuel

Licensed and proven fuel configuration with qualified facilities in the U.S. and Europe.

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World-class safety

Steam condensation and gravity allow the BWRX-300 to cool itself for a minimum of seven days without power or operator action.

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Robust supply chain

Decades of experience building supply chains, supporting local jobs and economies.

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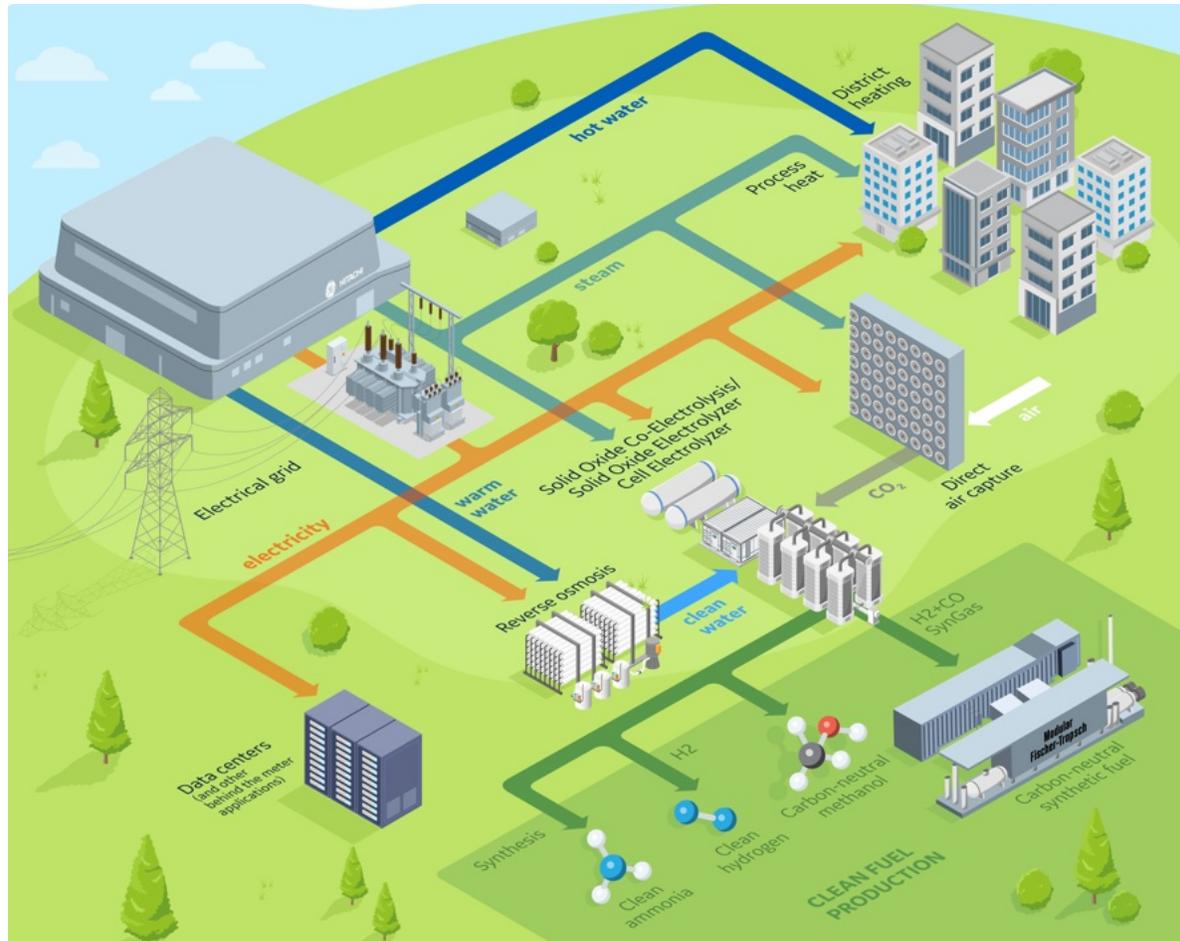
Project certainty

Deployable globally as early as 2029 thanks to proven know-how and innovative construction techniques.

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Adaptable design

The BWRX-300 Standard Designs for North America and Europe ensure efficient adaptation to requirements in those regions.



Infographic

Take a closer look

The BWRX-300 supports decarbonization efforts by delivering clean, always available power to the grid and

behind-the-meter applications. In addition, it can provide hot water and steam that can be used for district heating, clean hydrogen and fuel production, reverse osmosis, and direct air capture.

Leading-edge technology and construction

BWRX-300 features

The construction technologies incorporated into the BWRX-300 design adopt advanced concrete solutions and innovative techniques that have been proven in the oil and gas, tunneling and power industries.



Right-sized and cost-effective

Using a combination of modular and open-top construction techniques, the Nth-of-a-kind BWRX-300 can be constructed in 24-36 months while achieving an

approximate 90 percent volume reduction in plant layout. In addition, reducing the building volume by about 50 percent per MW should also account for 50 percent less concrete per MW—a significant improvement in both affordability and advantageous size.

Specifications

A closer look at the BWRX-300

An advanced reactor, the BWRX-300 uses natural circulation and passive cooling isolation condenser systems to promote simple and safe operating rhythms. In the global race for advanced nuclear power, the BWRX-300 sets itself apart with its proven, less complicated attributes



- **Reactor type:** Boiling water reactor
- **Electrical capacity:** 300 MW(e) net to the grid

- **Primary circulation:** Natural circulation
- **Fuel enrichment:** 3.81% (avg)/4.95% (max)
- **Refueling cycle:** 12-24 months
- **Approach to safety systems:** Fully passive
- **Design life:** 60 years

Working with our customers

Positioned for global success

Canada

Smaller reactors for greater generation capacity

BWRX-300

reactors being built at Darlington

60%

maximum capital cost reduction per MW

"The Ontario supply chain has embraced the BWRX-300 project and we are encouraged by the leadership we have seen to meet manufacturing quality and schedule requirements to support this project and our integrated team."

Working with our customers

Positioned for global success

Canada

First signed contract

2028

projected completed date

- Tennessee Valley Authority, Ontario Power Generation, Synthos Green Energy and GE Hitachi to share in the investment of approximately \$400 million to develop the BWRX-300 standard design.
- GEH has been selected by Ontario Power Generation (OPG) as the technology partner for the Darlington New Nuclear Project. GEH will work with OPG to deploy a BWRX-300 at the Darlington site. Construction of North America's first SMR could be complete by late 2028.
- GEH also selected by SaskPower for potential deployment in Saskatchewan.

Working with our customers

Positioned for global success

U.S.

Agreement with Tennessee Valley Authority (TVA)

1st

site permitted in the U.S.

- Agreement with Tennessee Valley Authority to support a Construction Permit Application for deployment at the Clinch River site in Oak Ridge, TN.
- GEH's U.S. Nuclear Regulatory Commission permit for the TVA site is the only site permit in the U.S.
- GEH is also conducting early planning work with several other U.S. nuclear utilities.

Working with our customers

Positioned for global success

Poland

SMR deployment joint venture

- Synthos Green Energy and PKN Orlen established a joint venture for SMR deployment. The Polish Ministry of Climate and Environment has issued decisions-in-principle for the construction of a total of 24 BWRX-300 SMRs at six locations. Poland and Canada regulators to expand cooperation activities for the review of SMRs.

- The President of the National Atomic Energy Agency has confirmed to ORLEN Synthos Green Energy (OSGE) that the design of GE Hitachi's BWRX-300 SMR reactor meets nuclear safety requirements. U.S. Export-Import Bank and U.S. International Development Finance Corporation have signed letters of interest to lend up to \$4 billion to support projects.
- OSGE is among the winners selected under Project Phoenix and will receive funding from the U.S. Department of State to help accelerate the deployment of the BWRX-300 in Poland.

Working with our customers

Positioned for global success

Global

Partnerships around the world

- GEH submitted Generic Design Assessment application for BWRX-300 in the UK.
- Agreements in place in the Czech Republic and Sweden to support deployment of BWRX-300.
- Fermi Energia selected BWRX-300 for deployment in Estonia.

- Active discussions taking place in the Middle East, Africa, Asia, Australia and Latin America.

Videos

The role of nuclear energy in our carbon-free future

There's a new type of nuclear that can provide power without any emissions: The BWRX-300.

Partnership and leadership

GE Hitachi has been selected by Ontario Power Generation as the technology partner for the Darlington New Nuclear Project, North America's first SMR.

Recent developments

BWRX-300 SMR news

Contact us

Want to learn more about GE Hitachi's SMR?