

BWRX300

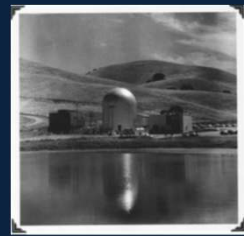
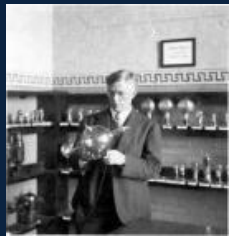


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Rich history of nuclear innovation and demonstrated experience deploying nuclear reactors



Proven success turning vision into commercial-scale reality, on time and on budget



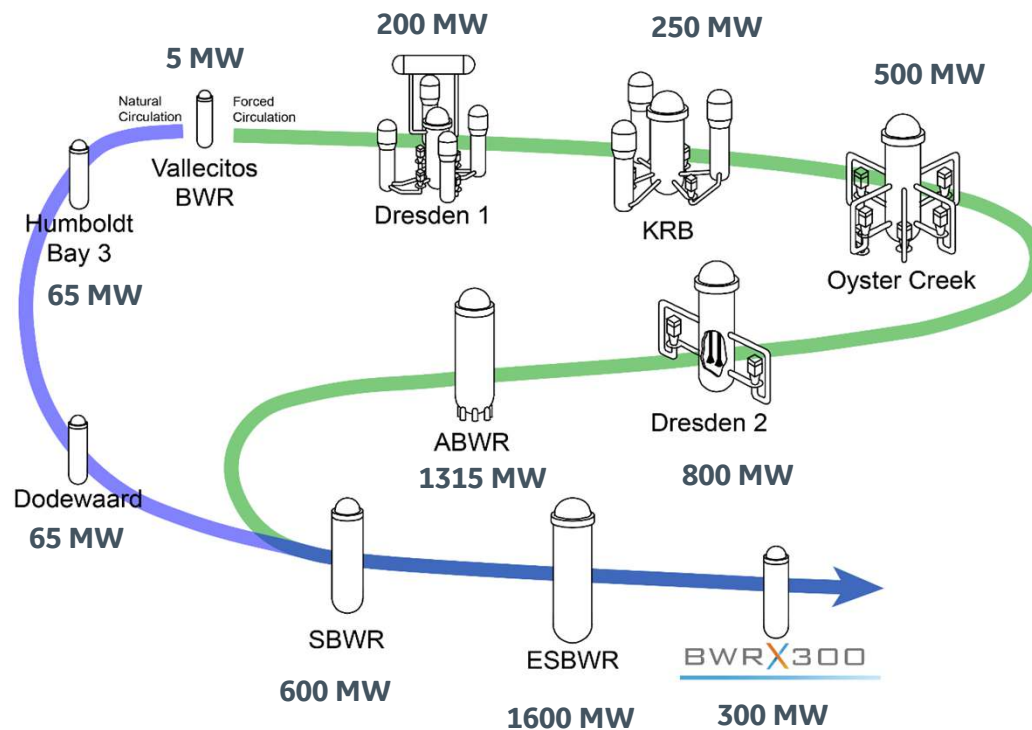
OVER 80 YEARS OF NUCLEAR EXPERIENCE AND INNOVATION



* Jointly developed technology with TerraPower

67 REACTORS LICENSED IN 10 COUNTRIES

BWR design evolution



- BWR concept developed in the 1950s
- Continuous evolution in the design
- Main changes related to:
 - Nuclear fuel
 - Recirculation flow
 - Steam cycle
 - Containment

BWRX-300 small modular reactor

- 10th generation Boiling Water Reactor
- World class safety
- Leverages U.S. NRC licensed ESBWR
- Design-to-cost approach
- Significant capital cost reduction per MW
- Capable of load following
- Ideal for electricity generation and industrial applications, including hydrogen production
- Constructability integrated into design
- Initiated licensing in the U.S. and Canada
- Operational as early as 2028

MOST
COMPETITIVE SMR



300 MW
Water Cooled
SMR



Designed to
Mitigate LOCA



Reduced
Staff



Competitive
LCOE

Breakthrough innovation – integral isolation valve

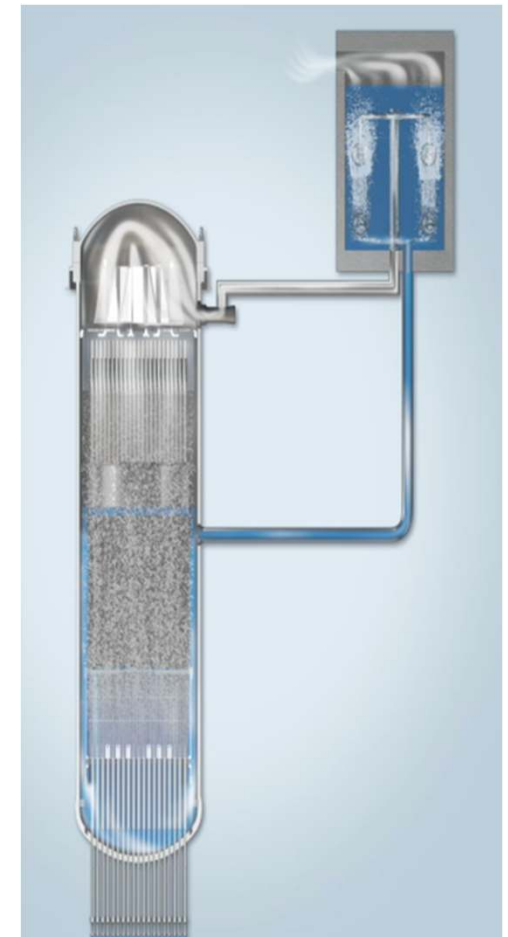


- Part of ASME code boundary for vessel
- Double isolation ... independent actuators
- Minimizes inventory loss for large breaks ... Loss of Coolant Accident (LOCA)
- Patented / NRC approved

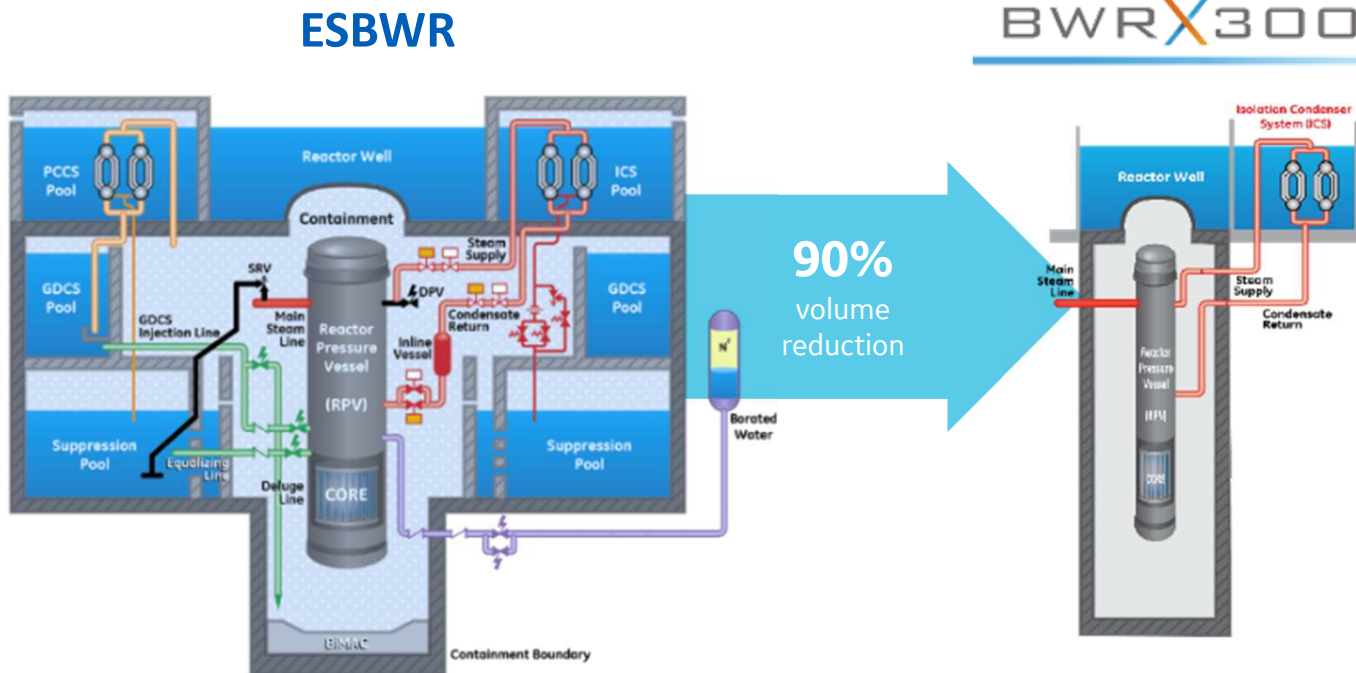
Passive Safety thru natural circulation design + Isolation Condenser System (ICS) + Integral Isolation Strategy

Outcomes:

- ✓ Defense-in-Depth with redundancy and diversity ... 3 x 100% trains
- ✓ Removes decay heat and maintains pressure while maintaining water inventory
- ✓ Inherently safe with no operator action or AC power for accidents ... 7 days minimum
- ✓ Enables dramatic design simplification and elimination of unnecessary systems



Simplicity drives cost reduction



Systems/components eliminated:

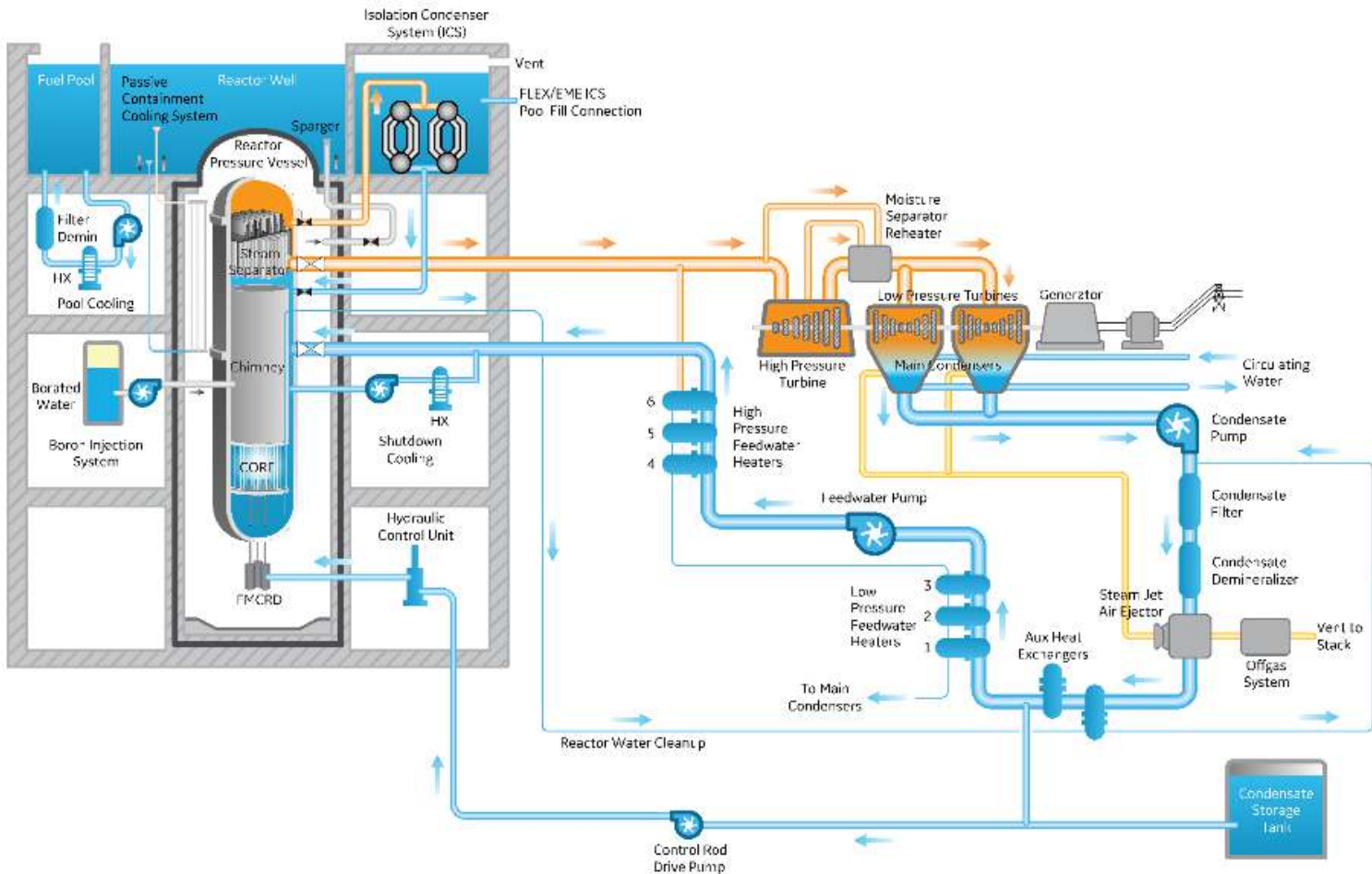
- Suppression Pool
- GDCS Pool
- Safety Relief Valves & Spargers
- Depressurization Valves
- BiMac (core catcher)

Systems/components simplified:

- Passive Containment Cooling (PCCS)
- Containment (use of SC)
- Boron injection
- Security (built into design)
- Turbine
- Generator (air cooled)

>50% building volume reduction/MW
>50% less concrete/MW

BWRX-300 → Simplification



- Natural circulation for core flow
- Integrated RPV isolation valves
- Passive Isolation Condenser system
- No safety relief valves
- Dry containment
- Steel / concrete composite structures
- Air-cooled generator

Utilizing proven technology

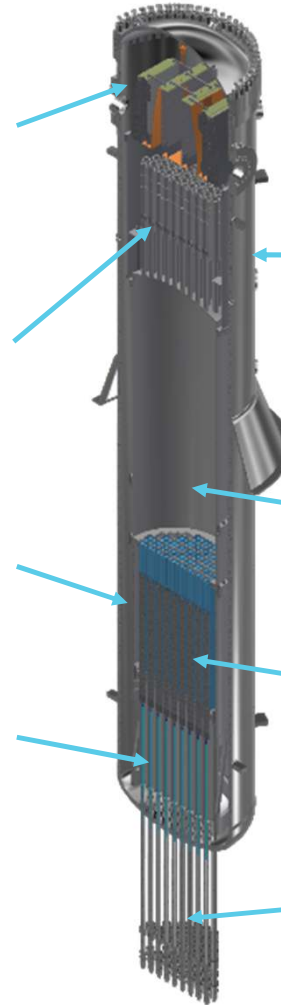
PROVEN
COMPONENTS,
PRIOR TESTING,
AND
OPERATIONAL
HISTORY
GREATLY
ACCELERATE
DEPLOYMENT

Dryer
Same features as ABWR* and ESBWR ...
Same as upgrades for existing fleet ...
Size nearly identical to KKM**

Steam separators:
Same as ABWR* and ESBWR ...
Similar to others in the BWR fleet

GNF2 fuel:
>25,000 bundles delivered ...
Utilized by ~70% of BWR fleet

Control rod blades:
Same as ABWR* ...
Longer than ESBWR ...
Almost identical to latest design for
BWR fleet



BWRX300



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Reactor pressure vessel:

Same material and fabrication processes as ABWR*, ESBWR and many of the BWR fleet ...
Diameter almost identical to KKM**

Chimney:

Uses ESBWR and Dodewaard*** technology ... Simplified

Nuclear Instrumentation:

Fixed in-core Wide Range Neutron Monitors and Local Power Range Monitors

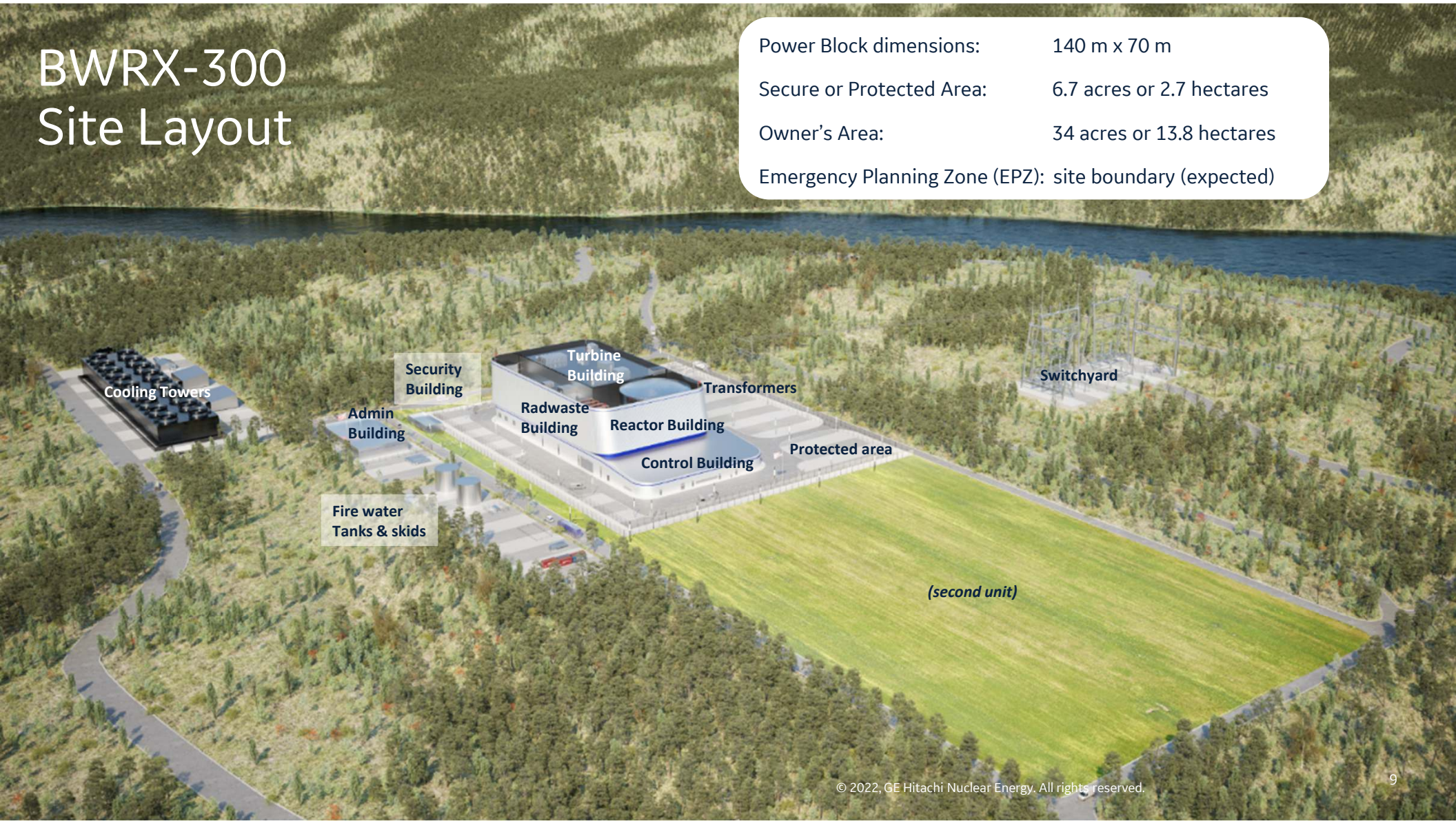
Fine motion control rod drives:

Same as ABWR* and ESBWR

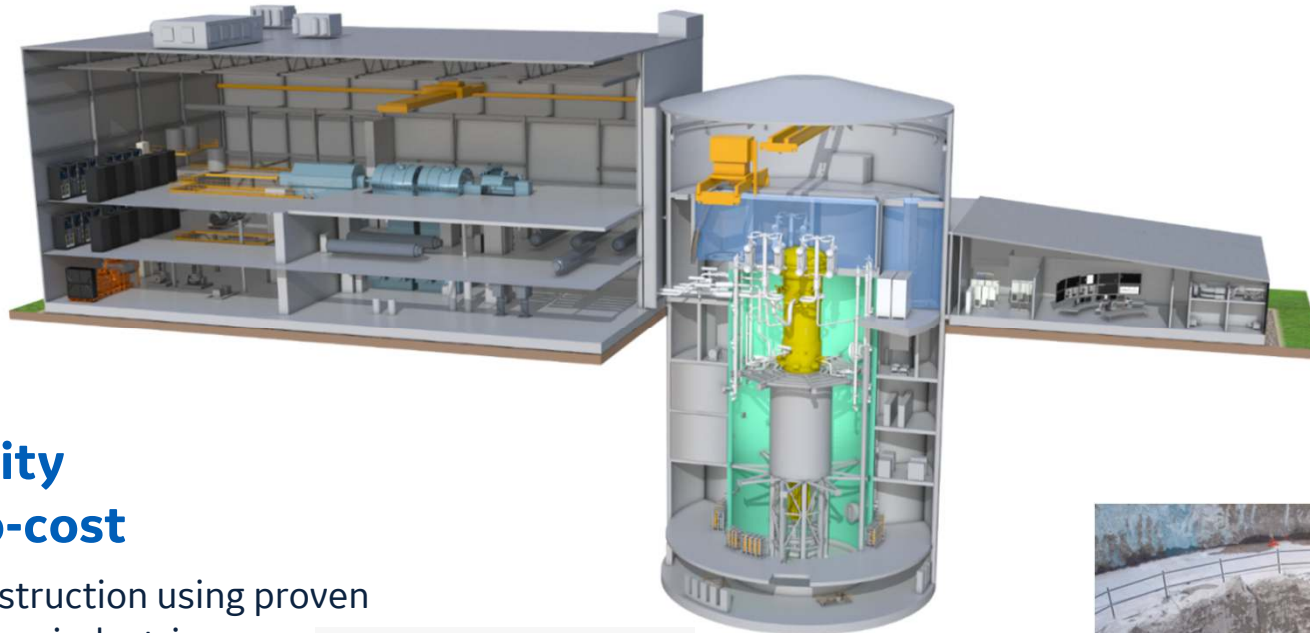
* ABWR fleet has combined 22+ years of operating experience | ** Kernkraftwerk Mühleberg (KKM): 355 MWe BWR/4 in operation since 1972 | *** Dodewaard: 58MWe natural circulation BWR, 1969 ~ 1997

BWRX-300 Site Layout

Power Block dimensions: 140 m x 70 m
Secure or Protected Area: 6.7 acres or 2.7 hectares
Owner's Area: 34 acres or 13.8 hectares
Emergency Planning Zone (EPZ): site boundary (expected)



Optimized for cost and ease of construction



Constructability and Design-to-cost

- Underground construction using proven methods from other industries
 - ✓ Vertical shaft sinking
 - ✓ SteelBricks™ technology
- Maximum use of catalogue items
- “Off the shelf” turbine/generator

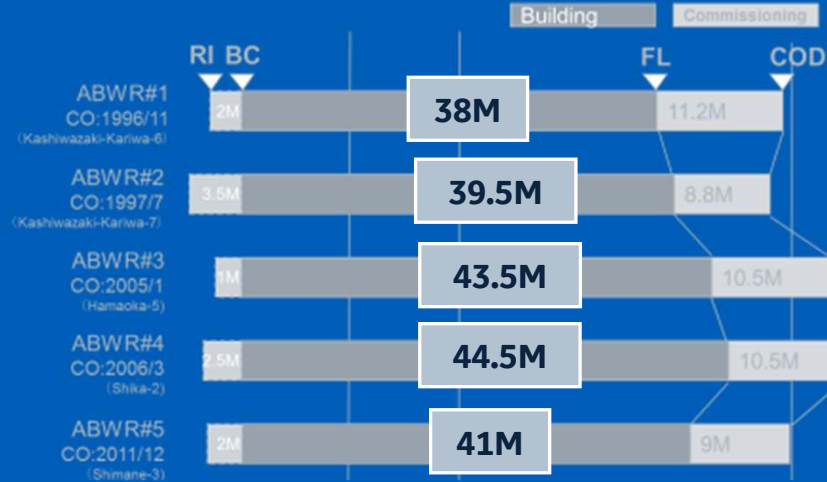


Building on ABWR experience



**Kashiwazaki-Kariwa
6/7 ABWRs**

Efficient, repeatable model



M - months

FIRST-OF-A-KIND GEN III PLANT BUILT ON 38-MONTH CONSTRUCTION SCHEDULE

Centralized fleet services



BWRX-300 fleet services



Centralized Operations Support

- Training Programs
- Configuration Management
- Systems, Fuel Cycle and Reactor Engineering
- Asset Performance Management
- On-Call Technical Consulting



Outage Maintenance and Refueling

- Refueling and fuel handling
- Reactor maintenance
- Chemistry program management
- TI/BOP maintenance



Parts Solutions

- Asset Management Solutions
- Motor Bearing Repair/Refurbishment Services
- Electronics Repair & Return
- Warehousing and Distribution

Ontario Power Generation selects GEH's BWRX-300

ONTARIOPOWER
GENERATION



TORONTO | DECEMBER 2, 2021

GE Hitachi Nuclear Energy selected by Ontario Power Generation as technology partner for Darlington new nuclear project.

- Deployment could be complete as early as 2028
- **OPG submitted license-to-construct in Oct 2022 to Canadian regulator**
- Substantial economic opportunity for Ontario and Canada

Polish JV formed to deploy GEH's BWRX-300

POLAND | DECEMBER 15, 2021

Polish companies Synthos Green Energy and PKN Orlen have signed an investment agreement to establish a joint venture for the deployment of a small modular reactor (SMR) fleet in Poland.

The Orlen Synthos Green Energy joint venture will commercialize GE Hitachi Nuclear Energy's BWRX-300



TVA and OPG Partner on New Nuclear Technology Development



TVA authorizes new nuclear program to explore innovative technology.

TVA developing a construction permit application for BWRX-300 at the Clinch River Site.



CNSC and NRC Collaboration



- Signed an MOU in 2017 and a joint memorandum of cooperation in 2019 aimed at enhancing technical reviews of SMRs
- Released Joint Report on GE Hitachi's Containment Evaluation Method of BWRX-300
- GEH will continue with Vendor Design Review process in Canada and pre-application activity in the U.S.

Kärnfull selects BWRX-300 for deployment in Sweden

Kärnfull Next™



- In Aug 2019, Kärnfull Energi became the first supplier in Sweden and Denmark to offer 100% nuclear electricity contracts to households and small-to-medium businesses
- GEH selected to supply a number of SMRs in region as soon as possible
- Kärnfull has chosen partners to build a reliable supply chain to deliver cost-effective and timely fossil-free energy

SaskPower Selects GEH's BWRX-300



SASKATOON | JUNE 27, 2022

SaskPower selects the GE Hitachi BWRX-300 small modular reactor technology for potential deployment in Saskatchewan

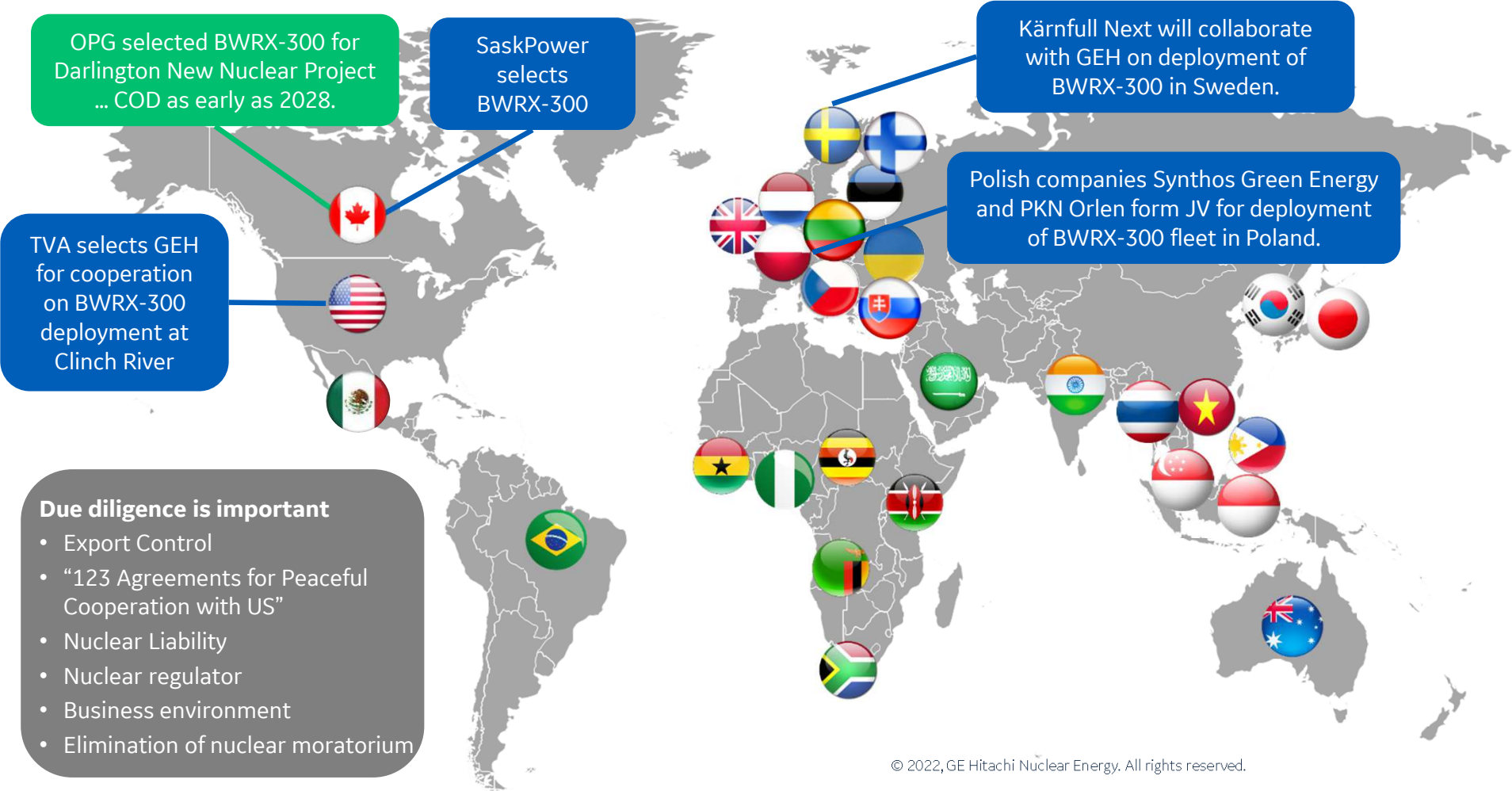
- Multi-year assessment focused on several factors including safety, technology readiness and fuel type
- Selection of the same technology as Ontario Power Generation helps enable a pan-Canadian, fleet-based approach to SMR deployment



Growing global interest and momentum ... 6 of 7 continents ... ~30 countries



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Synthos Green Energy plans to deploy at least 10 BWRX-300 SMRs in Poland by early 2030s

synthos



- SMR deployment could accelerate the decarbonization of the Polish economy
- BWXT Canada could manufacture wide range of products for these reactors, worth up to \$1 billion CAD