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WESTINGHOUSE ELECTRIC COMPANY

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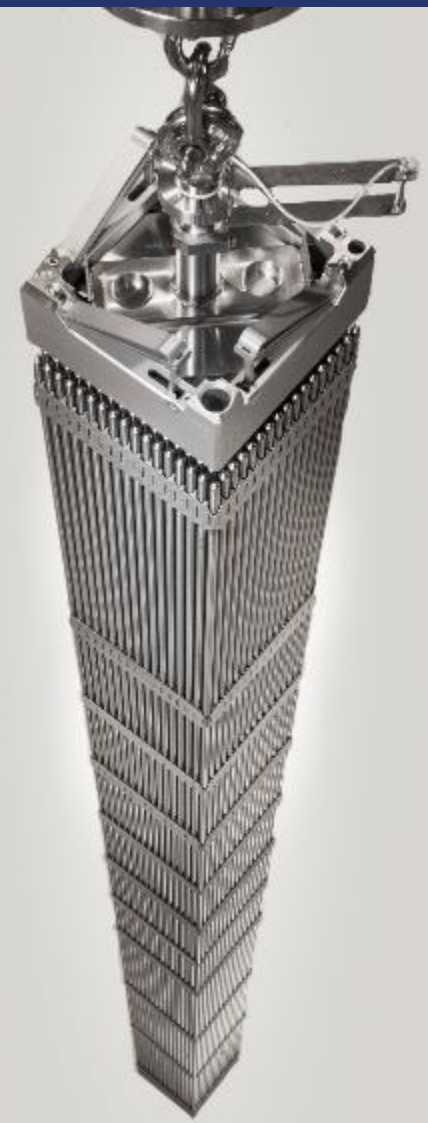
MORE THAN
130
YEARS OF INNOVATION



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WESTINGHOUSE
VISION & VALUES

Leading Infrastructure Services Provider to the Power Generation Industry

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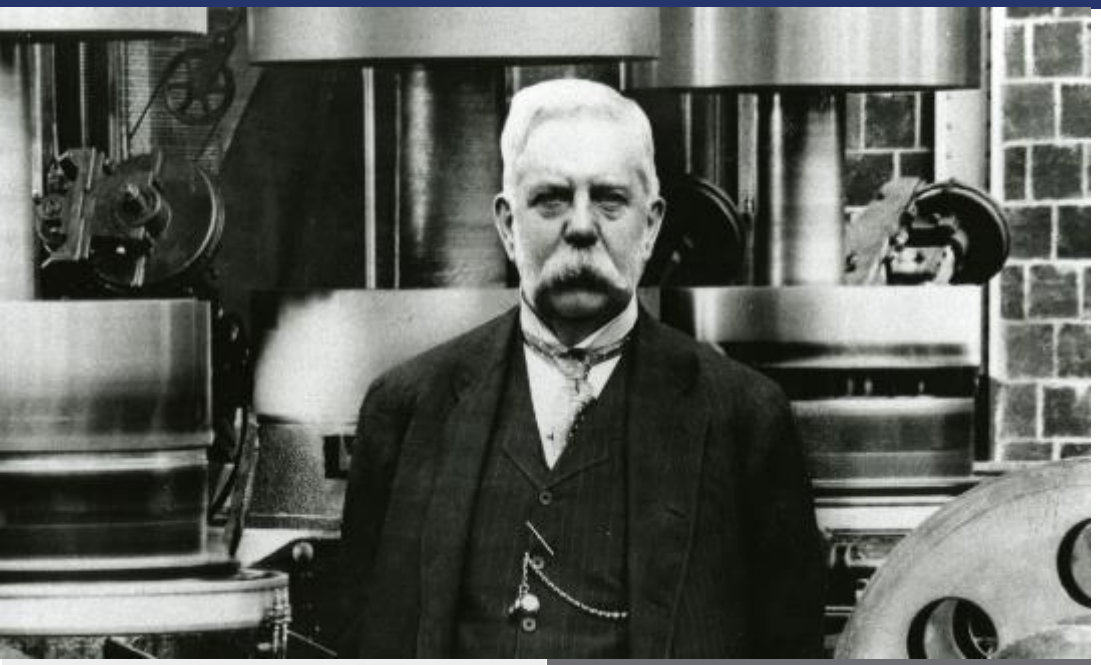
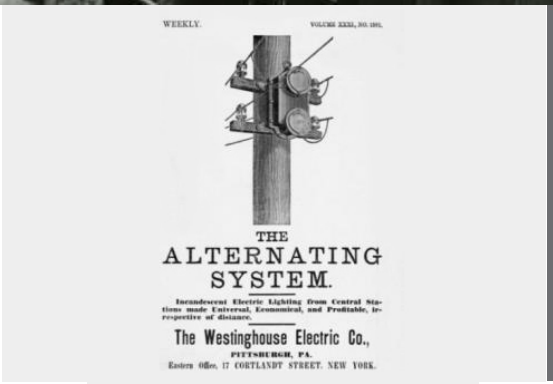
WESTINGHOUSE HISTORY





THE INNOVATION CONTINUES

130

YEARS LATER

- Founded by George Westinghouse in 1886

Westinghouse established

59

other companies

He received over

360

patents for his work

- Responsible for some of the world's greatest advances in energy technology
- World's first commercial pressurized water reactor (PWR) in 1957 in Shippingport, Pennsylvania, U.S.

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ABOUT WESTINGHOUSE

GLOBAL HEADQUARTERS

Cranberry Township, Pennsylvania, U.S.

Approximately
9,000
Employees

Comprised of
4
Business Units

- AMERICAS OPERATING PLANT SERVICES
- EMEA OPERATING PLANT SERVICES
- ASIA OPERATING PLANT SERVICES
- PLANT SOLUTIONS

Locations in
19
Countries

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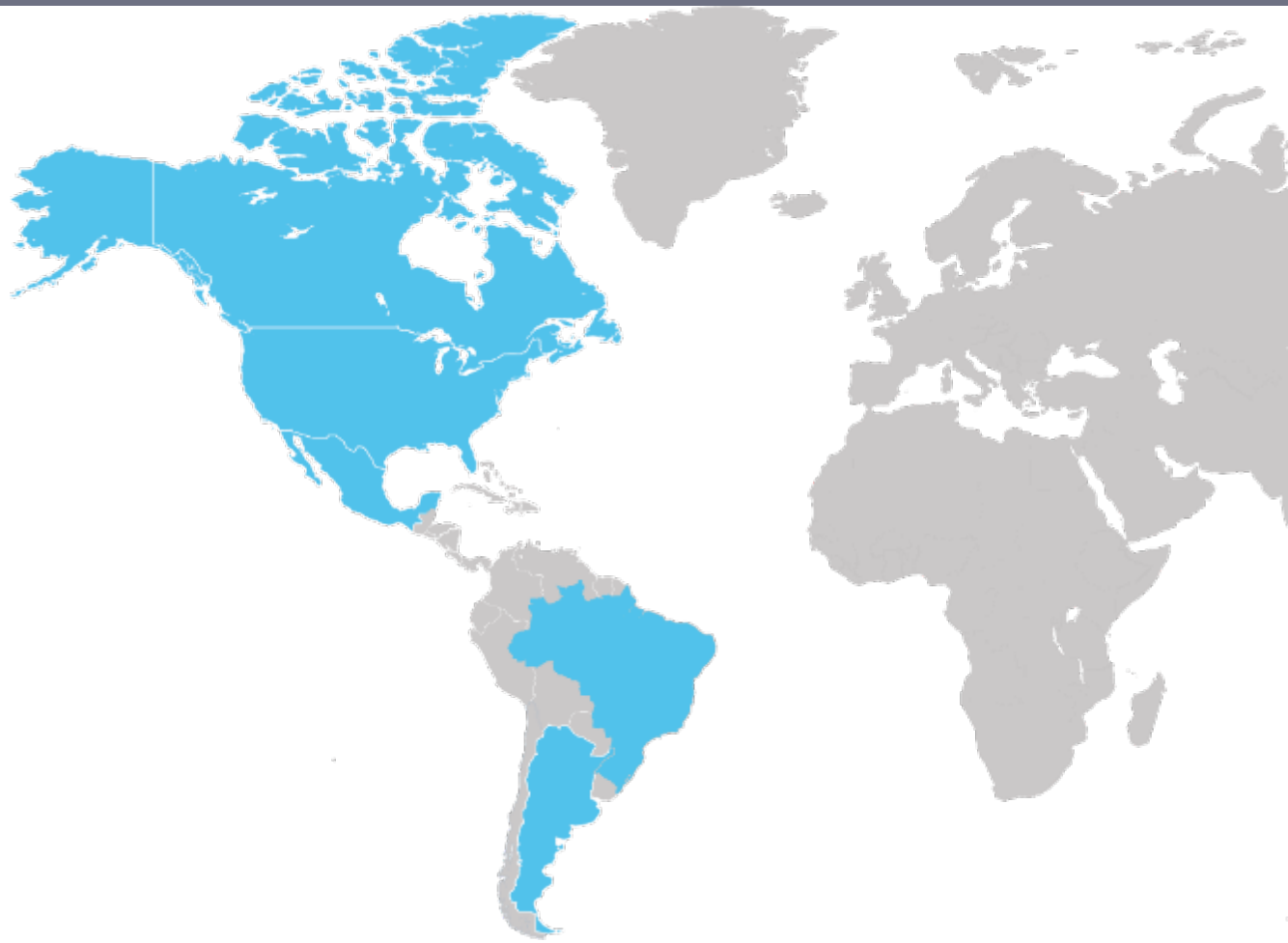
WESTINGHOUSE OVERVIEW

AMERICAS OPERATING PLANT SERVICES BUSINESS UNIT

Business unit focused on serving as a single point of accountability for sales and delivery of products and services to the existing nuclear operating fleet in the Americas.

- Presence in three countries to support customers in North and South America:
  Brazil, Canada, United States
- Vertically integrated to include: sales, commercial integration, marketing, government affairs, engineered systems and solutions, field services and plant modifications, and fuel delivery
- Strengthened by Westinghouse's global operations and technical capabilities



Blue highlights represent countries where Westinghouse does business

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WESTINGHOUSE OVERVIEW

EMEA OPERATING PLANT SERVICES BUSINESS UNIT

Business unit focused on serving as a single point of accountability for sales and delivery of products and services to the existing nuclear operating fleet in EMEA (Europe, Middle East and Africa).

- Westinghouse locations in EMEA:
  Belgium, Bulgaria, Czech Republic, France, Germany, Italy, South Africa, Spain, Sweden, Ukraine, United Arab Emirates, United Kingdom
- Vertically integrated to include: sales, commercial integration, marketing, government affairs, engineered systems and solutions, field services and plant modifications, and fuel delivery
- Strengthened by Westinghouse's global operations and technical capabilities

Blue highlights represent countries where Westinghouse does business

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WESTINGHOUSE OVERVIEW

ASIA OPERATING PLAN SERVICES BUSINESS UNIT

Westinghouse Asia focuses on bringing the company's global products and services experience to the Asia region and collaborating with strategic partners to fulfill industry needs in areas of potential growth.

- Westinghouse locations in Asia:
  China, Japan, South Korea
- 11 locations
- Approximately 270 employees
- Four AP1000® plants in full commercial operation in Sanmen and Haiyang, China
- Two joint ventures in Asia

Blue highlights represent countries where Westinghouse does business

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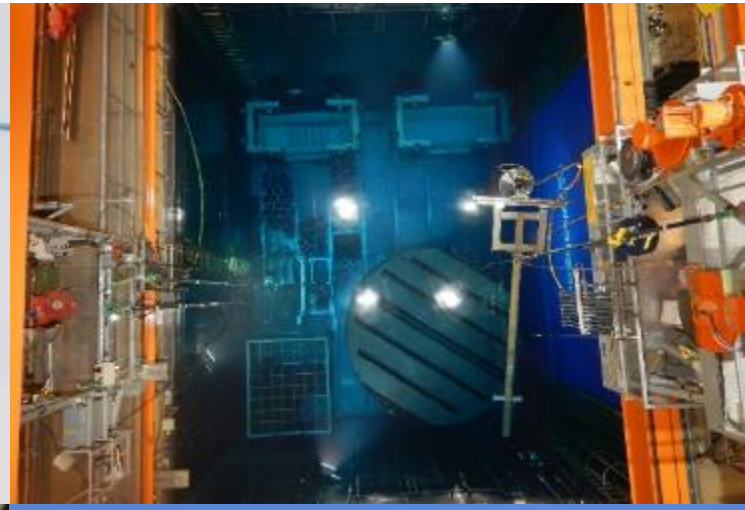
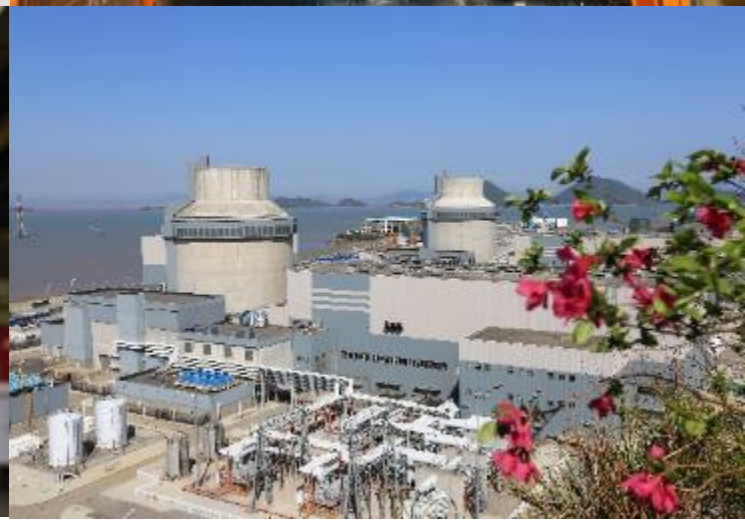
WESTINGHOUSE OVERVIEW

PLANT SOLUTIONS BUSINESS UNIT

Global business unit primarily focused on key growth areas related to the specific stages of the government and commercial plant lifecycle through:

- Global new plant sales, engineering and delivery
- Global plant decontamination and decommissioning solutions
- Government services
- Staffing services





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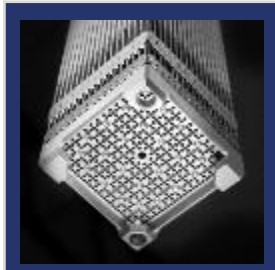
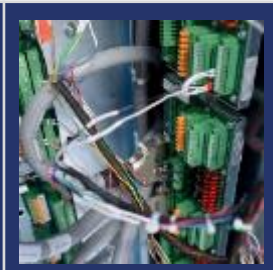
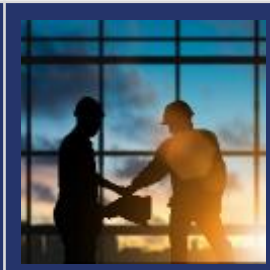
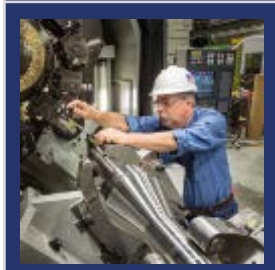
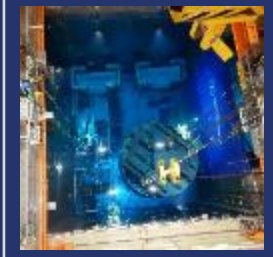
GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

 Nuclear Fuel	 Instrumentation and Control	 Staffing Services
 Components and Manufacturing	Field Services and Plant Modifications	New Plants
Engineering Services	 Decontamination & Decommissioning Solutions	Stone & Webster

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Nuclear Fuel

Fuel types:

- Pressurized Water Reactor (PWR)
- Boiling Water Reactor (BWR)
- Water-Water Energetic Reactor (VVER)
- Advanced Gas Reactor (AGR)

Complete fuel supplier:

- Development
- Manufacturing
- Core engineering
- Safety analysis
- Licensing and testing of nuclear fuel
- Fuel component manufacturing

Fuel manufacturing facilities in Columbia, South Carolina, United States; Springfields, United Kingdom; and Västerås, Sweden

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Components and Manufacturing

Components:

- Reactor pressure vessels
- Reactor coolant pumps
- Steam generators
- Fuel-handling equipment
- Critical spare parts supply
- Nuclear Steam Supply System (NSSS)

Centers of excellence and services in the following areas:

- Heavy and light machining
- Manufacturing, welding and fabrication
- Material supply and commercial dedication
- Plant outage rapid component supply
- Design for manufacturability consultation

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Serving global customers with precision-manufactured components and replacement parts for nuclear and non-nuclear applications

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Engineering Services

Focused on:

- Enhancing plant safety
- Improving plant performance and reliability
- Extending plant life

Products and services for nuclear operations fleet and adjacent markets:

- Systems and risk applications
- Component replacements and engineering
- Primary system design and repair
- Operations engineering and training

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Instrumentation and Control

Full lifecycle of instrumentation and control products for all plant designs:

- Support operating nuclear plants, including improvements and upgrades, and new plants

Products and services:

- Control system component services
- Outage support
- Training
- Cyber security
- Safety-related platforms
- Flux mapping
- Plant computer systems
- Nuclear instrumentation systems

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Field Services and Plant Modifications

Offering value-add services for our nuclear utility customers through:

- Full-scope global outage services, including for:
  - PWR and BWRs
  - Steam generators
  - Refueling and associated outage work
  - Fuel inspection and repairs
  - Outage management
- Outage control center
- Shop and service center operations
- WesDyne inspection services
- Welding, machining and installation services
- Technology and innovation

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We will be our customers' first call for safe, reliable people, services and products

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Decontamination & Decommissioning Solutions

Complete range of decontamination and decommissioning solutions:

- Decommissioning plans
- Nuclear component segmentation
- Waste optimization and packaging
- Decontamination for decommissioning
- Final site surveys and monitoring
- Waste storage and disposal facilities design
- Regulatory issues management
- Post-operation support
- Spent fuel services
- Waste treatment systems
- Site and waste characterization plans

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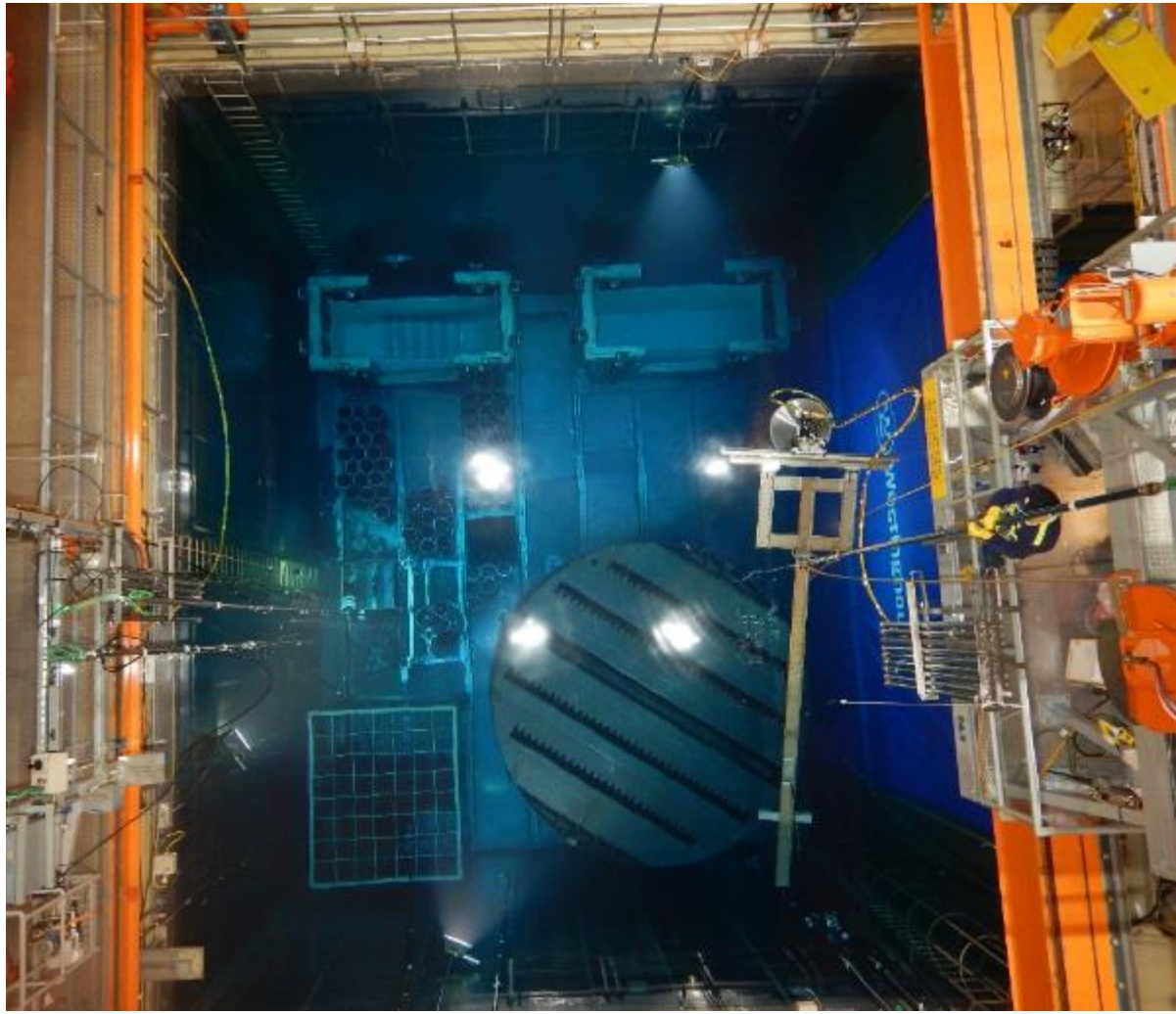

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Staffing Services

WECTEC Staffing Services has the technical and professional resources to recruit, onboard and staff your needs in a variety of areas with expert services in:

- Contingent labor
- Contract-to-hire
- Direct hire
- Outage support
- Project-based solutions

Providing customer-focused solutions with offerings ranging from high-volume/low-cost to specialized niche support

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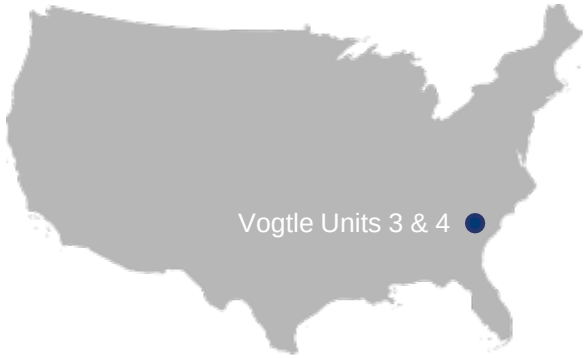
GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

New Plants

The Westinghouse AP1000® plant, a Generation III+ two-loop pressurized water reactor (PWR), is considered the most advanced commercially available plant, offering an industry-leading design featuring passive safety systems.

Westinghouse provides the development, licensing, detailed engineering, project management, component manufacturing and startup support for new nuclear power plants.



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Westinghouse currently has two AP1000® units progressing through construction at the Alvin W. Vogtle Electric Generating Plant near Waynesboro, Georgia, U.S.

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Completed Westinghouse AP1000® Reactors

In early 2019, Westinghouse completed four AP1000 nuclear power plants at the Sanmen and Haiyang, China sites

Each site has two AP1000 units, all of which safely and successfully achieved commercial operation

Sanmen Site. Image courtesy of Sanmen Nuclear Power Company Limited (SMNPC).

Haiyang Site. Image courtesy of Shandong Nuclear Power Company Limited (SDNPC).

Sanmen Site. Image courtesy of Sanmen Nuclear Power Company Limited (SMNPC).

Haiyang Site. Image courtesy of Shandong Nuclear Power Company Limited (SDNPC).

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GLOBAL PORTFOLIO OF PRODUCTS & SERVICES

Stone & Webster

Our solutions are based on technical innovation, creative engineering and industry experience, including:

- Professional services
- Owners engineering
- Engineering studies
- Detailed design
- Engineering, procurement, construction (EPC) management
- Welding
- Non-destructive examination (NDE) services
- Safety testing
- Nuclear fuel by-products

Westinghouse acquired Stone & Webster in 2016, expanding its capabilities in areas outside of nuclear energy generation

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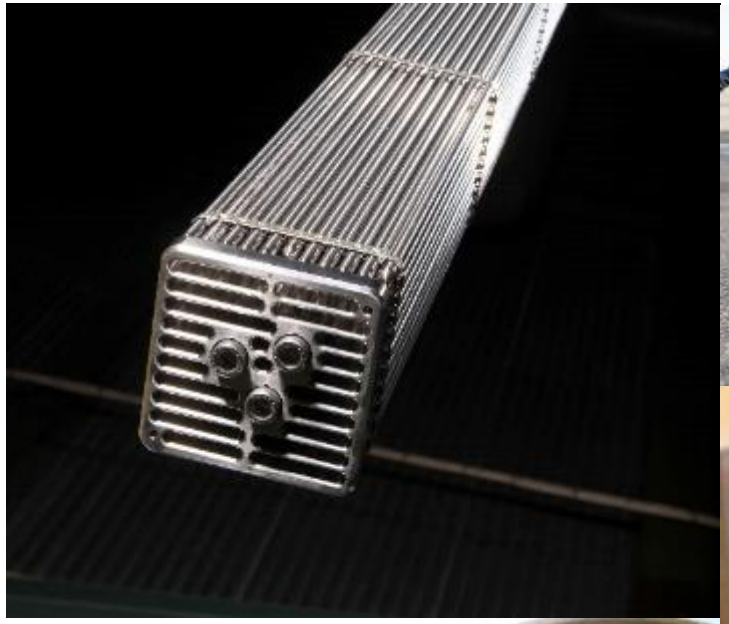
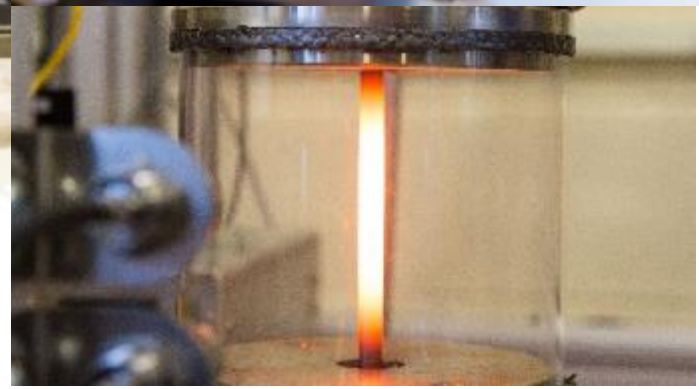
WESTINGHOUSE INNOVATION

Westinghouse continues to drive nuclear research & development:

- Focused on technology exploration and development to deliver value for our customers and enable Westinghouse growth
- A broad portfolio of commercially driven innovation projects
- Works across the global Westinghouse organization and with our industry partners to develop products and services for both future and existing clean energy markets





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Westinghouse Encore® Fuel Program

We're changing nuclear energy…again

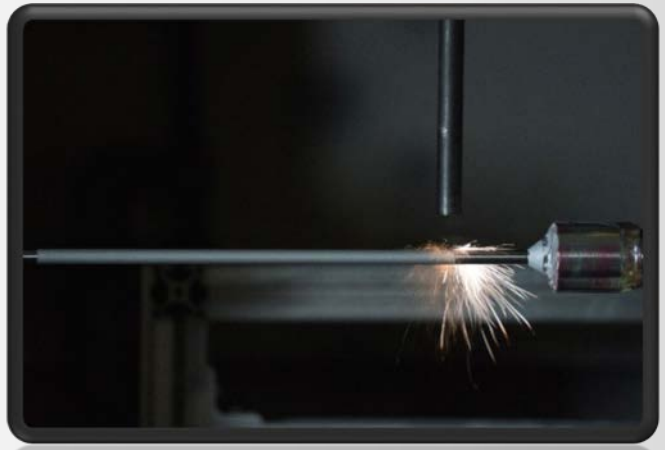
Westinghouse is developing a comprehensive accident tolerant fuel portfolio to provide enhanced safety margins and improved fuel economics

Advanced cladding

- Chromium (Cr)-coated zirconium: increases maximum allowable temperature by up to 300°C
- Silicon Carbide (SiC): increases maximum allowable temperature by up to 1200°C

Advanced fuel

- ADOPT™ doped UO_2 fuel: increases density and reduces pellet-cladding interactions and fission gas release
- U_3Si_2 fuel: increases density and thermal conductivity



Chromium-Coated Cladding

100% SiC
Composite Cladding

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Westinghouse eVinci™ Micro Reactor

eVinci is a next-generation micro reactor for decentralized generation markets

Product attributes:

- Combined heat & power: 0.2-5 MWe, up to 600ºC
- Fully factory built, fueled and assembled
- Up to 10-year life
- Inherent safety
- Minimal moving parts
- Physics-based with no operator action or mechanical actuations
- Autonomous load-follow capability
- Heat pipe technology
- Solid monolithic core block

Demonstration Strategy

2019 — 2 years Electrical Demonstration Unit (EDU) — 2021 — 3 years Nuclear Demonstration Unit (NDU)

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NUCLEAR ENERGY

Nuclear energy is critical to the world's energy future, and for our environment

- Nuclear power provides reliable carbon free energy - every day of the year!

Nuclear energy generates
AROUND
11%
of the world's electricity

Westinghouse technology is the basis for
ALMOST
50%
of nuclear plants in operation

MORE THAN
30
countries worldwide are operating

OVER
450
nuclear reactors for electricity generation

OVER
50
nuclear power plants under construction in
16
countries

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