NUSCALE™
Power for all humankind

Small Reactors for Business Conference – Is Poland the SMR Technology Incubator in Europe?

June 12, 2023

Scott Rasmussen

Director of Sales

NuScale at a Glance

1st
And Only SMR to Receive NRC Standard Design Approval and Certification

$1.6B
Cumulative Capital Invested to Date

545
Employees with Unparalleled Nuclear Experience

679
Total Patents

15
Years of R&D and Testing
Founded in 2007

8
Strategic Investors Supporting Global Customer Adoption[1]

28
PhDs

180
Masters in Engineering/ Science Degrees

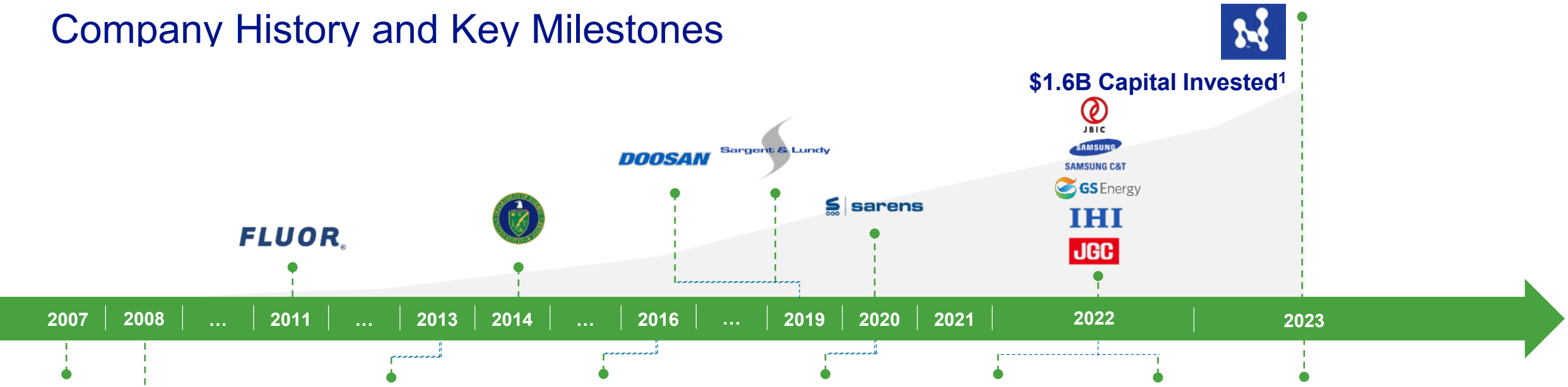
486
Granted

191
Pending Extensive Trade Secrets

Smarter | Cleaner | Safer | Cost Competitive

1. Established Supply Chain Network with Continued DOE Support

Company History and Key Milestones



Formation of NuScale Power, LLC

Began NRC Pre-Application

Secured First Committed Customer

$226mm U.S. DOE SMR Award Recipient

UAMPS Site Selection

First-Ever SMR Design Certification Application (DCA) Submitted to NRC

$1.4B U.S. DOE cost share for UAMPS

NRC Approval of Final Safety Evaluation Report

NRC Standard Design Approval of 160 MWth (50 MWe), 12-module Plant Design

Secured Next Committed Customer

Company Listed on the New York Stock Exchange

NuScale places first long lead material production order with Doosan Enerbility

First Task Order and Statement of Commencement Signed

Completed the Standard Plant Design Project

Submitted Standard Design Approval Application for 77 MWe VOYGR-6 Plant Design to the NRC

Doosan Enerbility begins production forging process of NuScale Power Modules

NRC begins review of Standard Design Approval application for 77 MWe design.

Note: Grey shaded area represents actual capital spend by NuScale over time, including both from private ...vestor capital raised and funds received from the DOE cost sharing program. Logos represent first investment in NuScale.

1. Represents cumulative capital invested through March 31, 2023. Includes funding received from the DOE cost sharing program. Excludes any capital raised as part of a de-spac transaction.

First SMR to Undergo Licensing in the U.S.

- Design Certification Application (DCA) for VOYGR™-12 (50 MWe design) completed in December 2016
- Docketed and review commenced by U.S. Nuclear Regulatory Commission in March 2017
- NuScale received Standard Design Approval (SDA) in September 2020
- Design certification received in February 2023

NuScale Power Makes History

First Ever Small Modular Reactor to Receive U.S. Nuclear Regulatory Commission Design Approval and Certification

DCA Statistics

- 12,000+ pages
- 14 topical reports
- >2 million labor hours
- >800 people
- >50 supplier/partners
- Over $500M invested to-date on licensing

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History in the Making: Forging the First NuScale Power Modules™

In April 2023, Doosan Enerbility commenced the forging production process for the first NuScale Power Modules for a VOYGR™ SMR power plant.

The first pours of molten carbon steel for a NuScale SMR represent a significant breakthrough into the manufacturing phase for the company and the SMR industry as a whole.

The product manufacturing phase has commenced and these first modules will be deployed as part of the Carbon Free Power Project

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NuScale is Years Ahead of the Competition

Selected Differentiators	NUSCALE	Small Modular Reactor Competitors[1]	
		Other Light Water Reactors	Non-Light Water Reactors[2]
Underlying Technology Track Record	Light water reactor (LWR) (50+ years history)	Same as NuScale	Relatively limited
Fuel Supply Infrastructure	Exists (50+ years history)	Same as NuScale	Does not exist today; Under development
Manufacturing Infrastructure	Multiple suppliers for all critical components	Same as NuScale	Largely in place
Design Approval by NRC	Standard Design Approval received from NRC (42 months after application submission)	None (applications not yet submitted)	None (applications not yet submitted)
Coping Period	Unlimited (confirmed by the NRC)	Varies; Goal of between 7 days and unlimited	Goal of unlimited
Unparalleled Capabilities	Innovations including black-start, island mode, off-grid operation	To be determined	To be determined

1. *Does not include micro reactors*
2. *For example; high temperature gas cooled, molten salt, and fast-reactor technologies*

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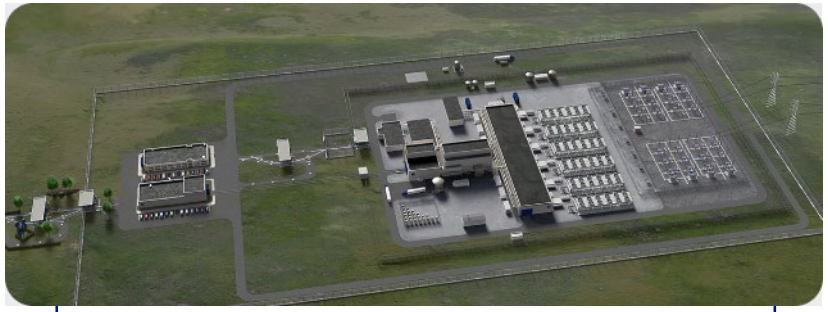
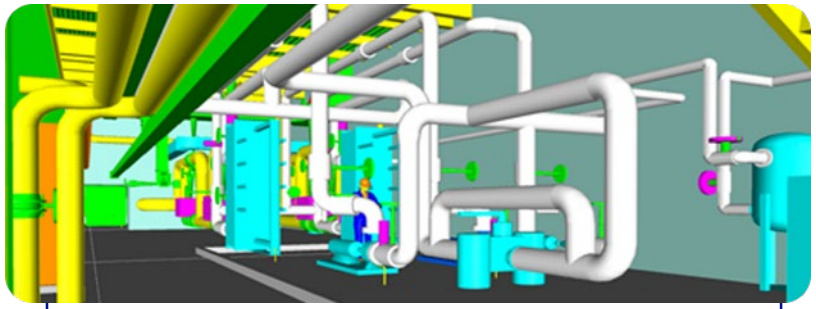
Standard Plant Design: Ready for Site Specific Deployments



Provides customers with a complete VOYGR SMR power plant design

Project details:

- 80,000 hours of development effort
- 700 contributors
- NuScale, Fluor Corporation and Sargent & Lundy partnered on the design's development



Encompasses 12,000 deliverables to support customer licensing and deployment activities including:

- Functional design of all systems, structural layouts, pipe routing, HVAC, electrical, I&C, and more
- Material takeoffs, equipment lists, and data sheets
- Comprehensive 3D model
- Supports all VOYGR plant configurations

Benefits to customers/projects:

- Significantly decreases the likelihood of design changes during construction that will impact cost and schedule
- Early identification of modularization techniques and module installation sequencing during construction
- Ensures consistency in codes and standards
- Maintains nuclear safety throughout the entire project

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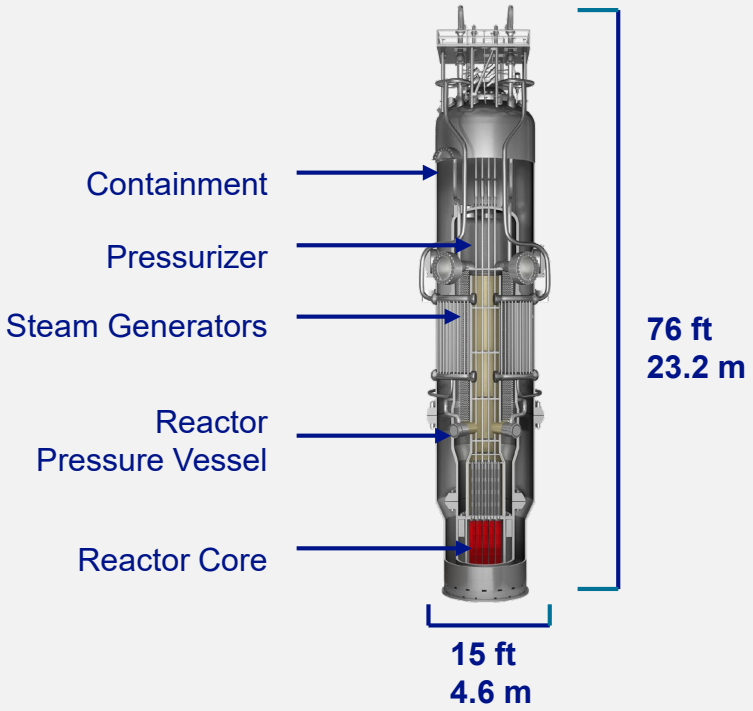
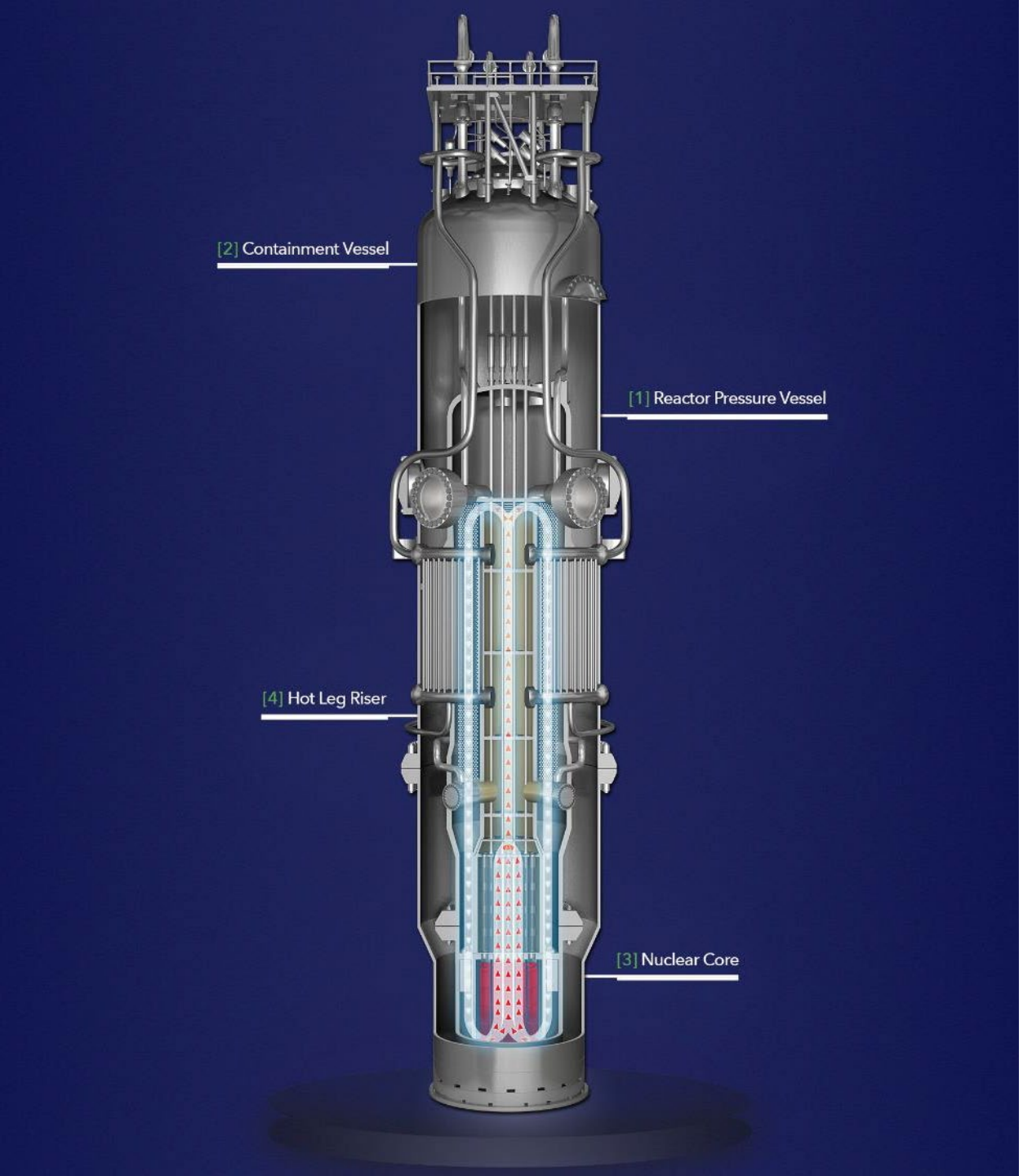
NuScale's Core Technology: the NuScale Power Module™



- Groundbreaking technology features a **fully factory fabricated** SMR referred to as a NuScale Power Module™ consisting of an **integral nuclear steam supply system** in which the reactor core, steam generators and pressurizer are all contained in a single vessel
- **Simple design** eliminates reactor coolant pumps, large bore piping and other systems and components found in conventional reactors
- Simplicity results in an extremely **strong safety case** and **reduced capital and operational costs**
- Modules can be incrementally added to match load growth

NuScale Power Module™ Specifications	
Electrical Capacity	77 MWe
Modules per Plant	Up to 12 (924 MWe)
Design Life	60 years
Fuel Supply	Existing light water reactor nuclear fuel
Safety	Walk-away safe
Emergency Planning Zone (EPZ)	Supports site boundary EPZ



Core Technology: NuScale Power Module™

- Simple design in one integral package that includes:
  - Steam generators
  - Pressurizer
  - Containment
- Eliminates:
  - Reactor coolant pumps
  - Large bore piping
  - Other systems and components found in conventional reactors
- Each module produces up to 77 MWe
  - Factory built for easy transport and installation
  - Dedicated power conversion system for flexible, independent operation
- Modules are incrementally added to match load growth

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Proven LWR Technology

- 67 years of civilian and naval operational experience.
- The NuScale design is based on proven light water reactor (LWR) technology
  - Used in > 350 commercial LWRs globally, and 83 nuclear-powered ships
- It is a natural circulation, light water, Pressurized Water Reactor (PWR) packaged in a small integral reactor vessel.
- Uses commercially available low-enriched uranium dioxide fuel, control rods, off-the-shelf skid mounted turbine generator sets, cooling towers, balance of plant and electrical distribution systems.
- NuScale has expended over $100M is assessing and demonstrating all of the reactor's key components.
- All novel features of the design were tested:
  - Main Control Room
  - NuScale Fuel Bundle (Framatome)
  - Helical Coil Steam Generator (SIET S.p.A)
  - Integral System Safety (Nuscale Integral Systems Test)
  - Full Scale Safety Valves (National Technical Systems)
  - Module Assembly equipment (PaR Systems)

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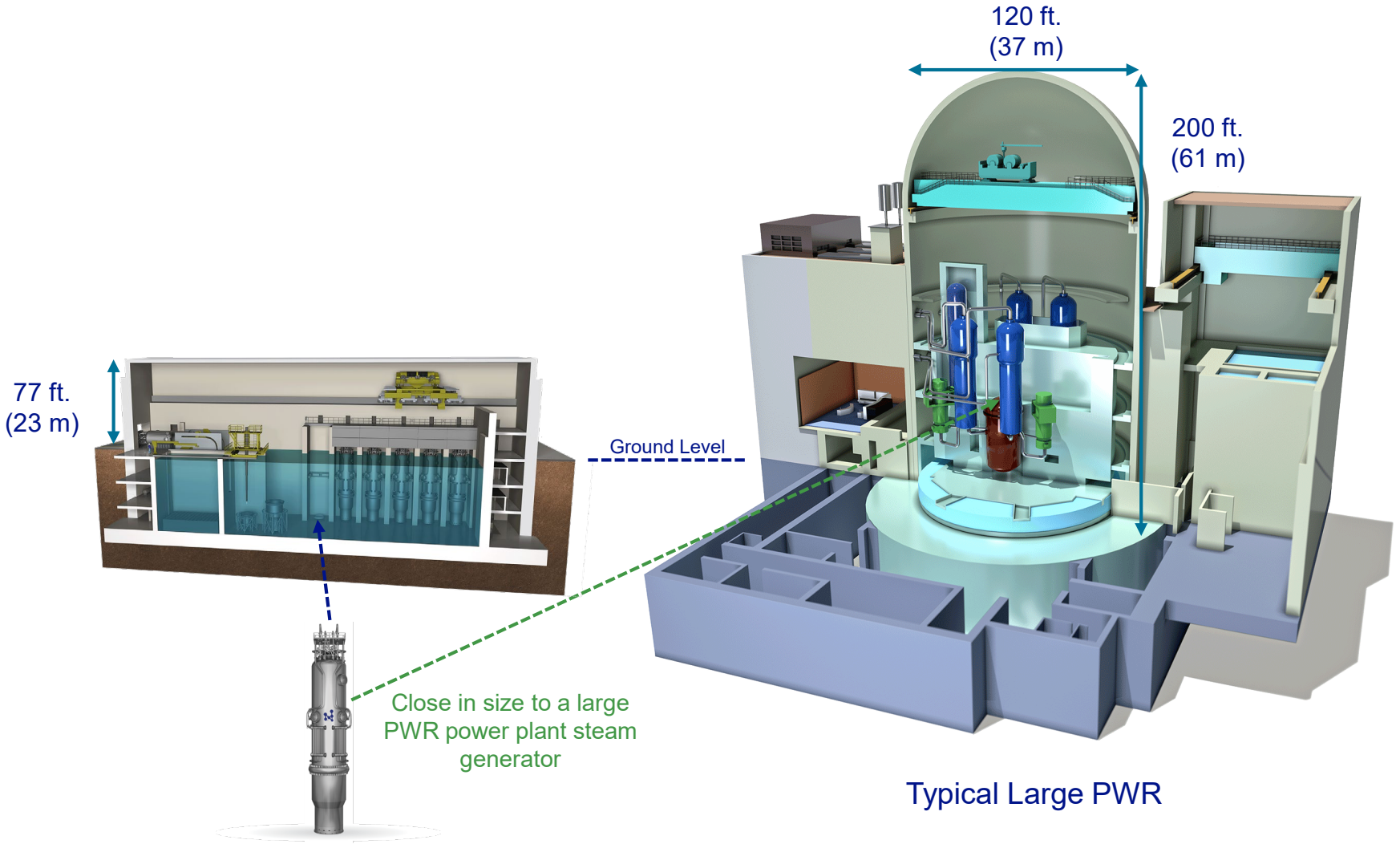
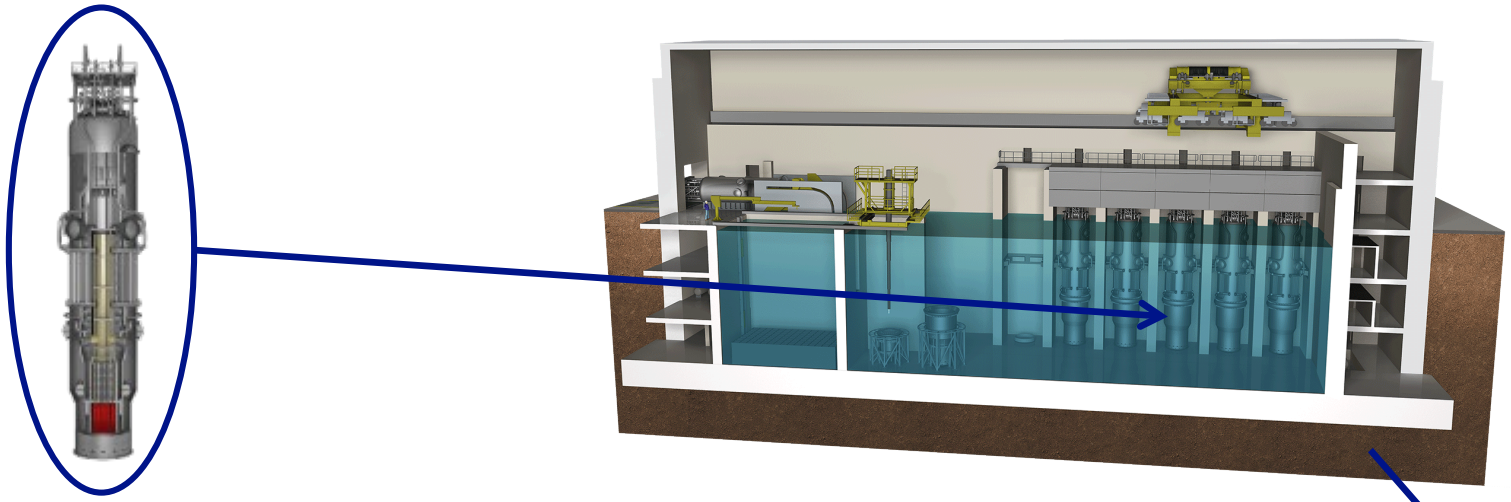
Comparison to a Large Pressurized Water Reactor (PWR)



Images not to scale

NuScale Advanced Small Reactor Overview

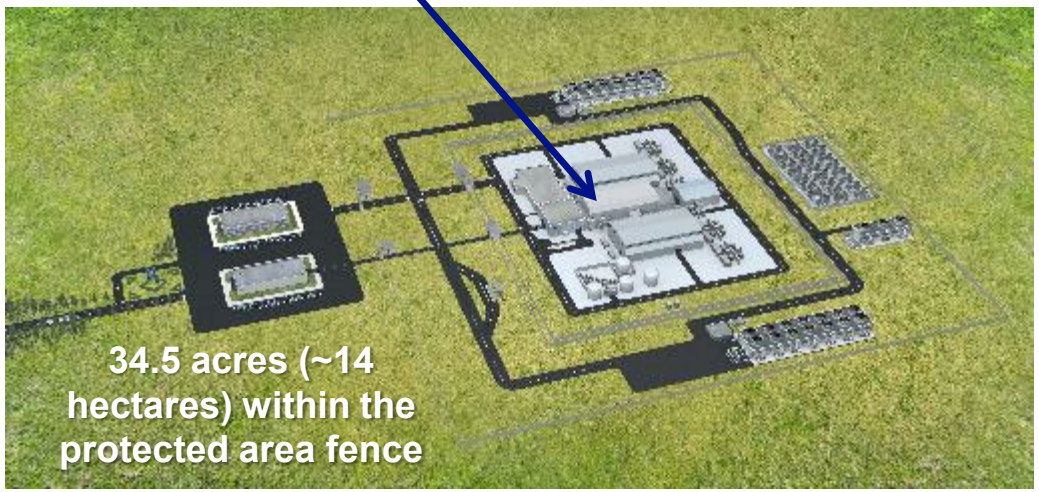


- Each module produces up to **77 MWe**
- Up to **12 modules** for **924 MWe** gross plant output
- Smaller power plant solutions available for VOYGR-4 (308 MWe) and VOYGR-6 (462 MWe) plants

Triple Crown of Safety - NuScale Plant safely shuts down with:

- No operator or control system actions
- No AC/DC power
- No additional water

Emergency planning zone (EPZ) ends at site boundary



Providing Identical Technology for Every Implementation

6-module VOYGR-6 plant

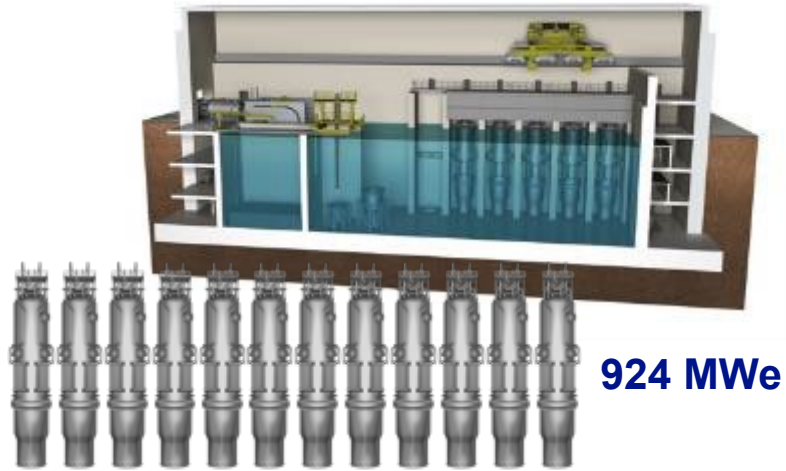
462 MWe (gross)

4-module VOYGR-4 plant

308 MWe (gross)

NuScale Power Module™
77 MWe (gross)

12-module VOYGR-12 plant



924 MWe (gross)

- Flexibility in size and cost advantages, with the same operational flexibility and unparalleled safety case.
- Each module feeds one turbine generator train, eliminating single-shaft risk.
- Demonstrated resiliency for every configuration (black-start, island mode, seismically robust, cyber secure, etc.)

Inherently Safe Design Sets New Industry Standards – Triple Crown of Nuclear Plant Safety™

Unlimited Coping Period for Reactors

Comparison of Reactor Coping Period Following an Extreme Station Blackout
(loss of both AC and DC power)

Generation II Reactors:
4-8 Hours With Significant Operator Actions Required

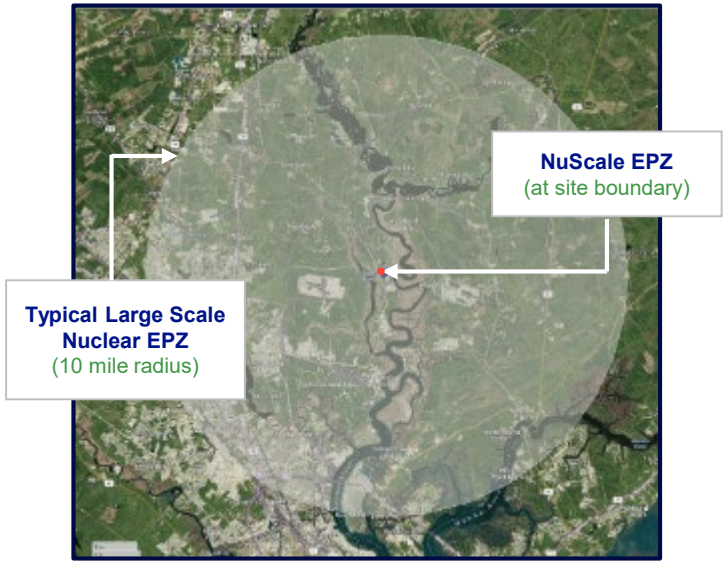
Generation III & III+ Reactors:
Up To 72 Hours With No Operator Actions

Generation IV Reactors Advanced LWR:
8 Hours With No Operator Actions

UNLIMITED WITH NO OPERATOR ACTIONS OR EXTERNAL SUPPORT

Only SMR that Supports U.S. NRC Site Boundary Emergency Planning Zone ("EPZ")

The smaller EPZ enables NuScale Plants to be sited in close proximity to end-users, which is of particular importance to **process heat off-takers and repowering retiring coal-fired generation facilities**



Williams Power Station (Coal, 650 MW), S. Carolina
Announced retirement date of 2028

Unparalleled Capability and Performance

Capable of "Black-Start" and Operation in "Island Mode"
A NuScale plant can be started without the need for power from the grid and can operate disconnected from the grid – a first for a nuclear power plant

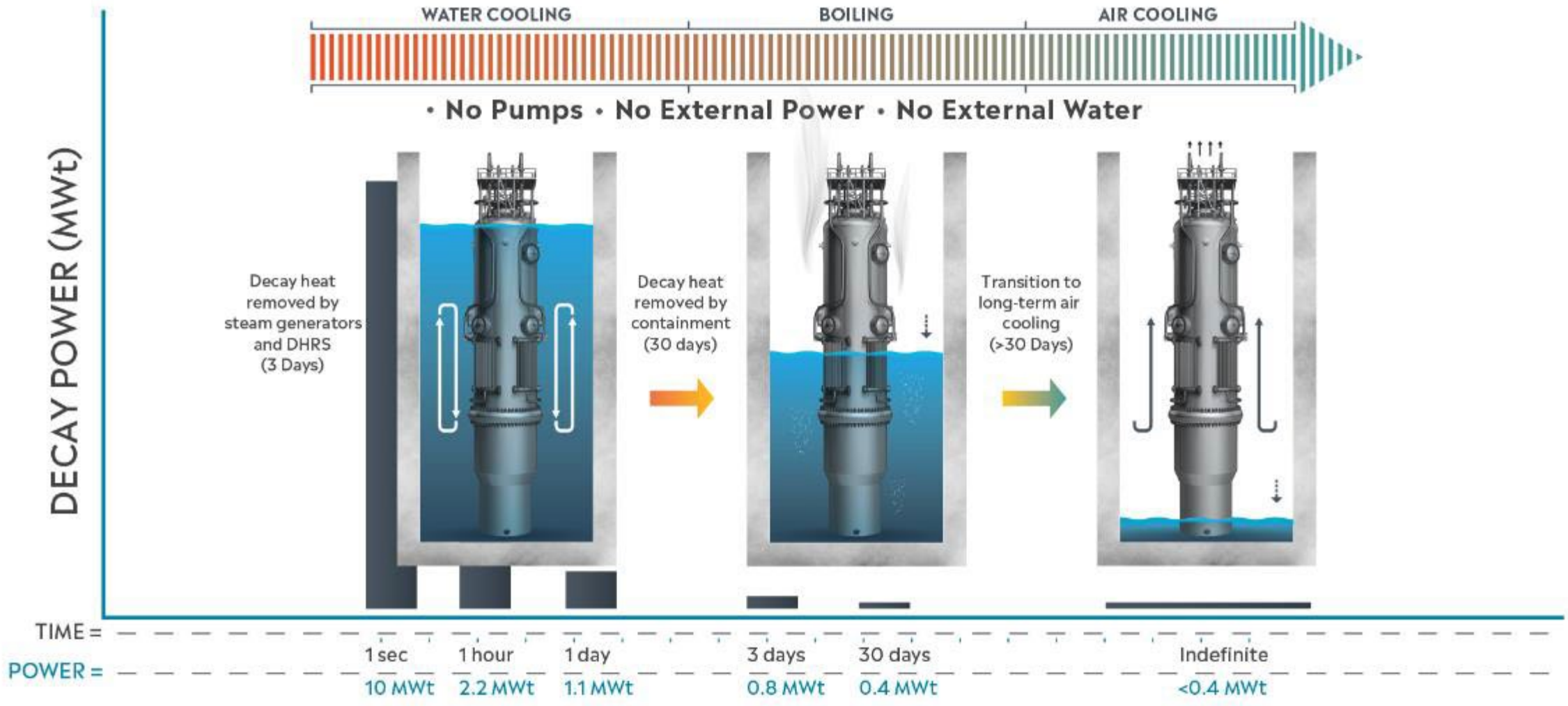
First Responder Power
A NuScale plant can start-up without power from the grid and can inject power back into the system to support grid restoration

Deliver Highly Reliable Power
Under a microgrid connection, a 12-module NuScale plant can provide over the 60-yr plant lifetime 154 MWe of power to mission critical installations at 99.95% reliability

Flexible Siting Options
A NuScale plant can be sited at the "end of the line" with only a single grid connection, or off-grid

Innovative Advancements to Reactor Safety

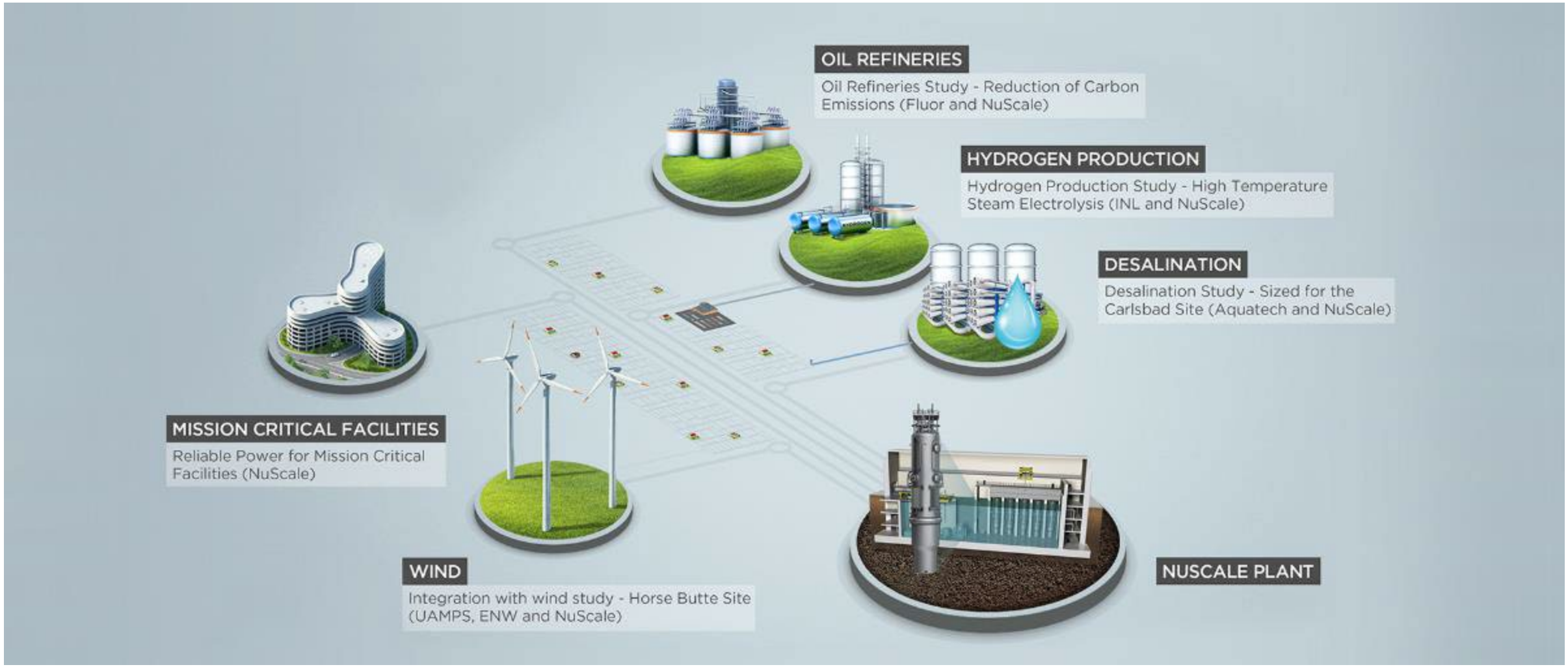
Nuclear fuel cooled indefinitely without AC or DC power*



*Alternate 1E power system design eliminates the need for 1E qualified batteries to perform ESFAS protective functions – Patent Granted

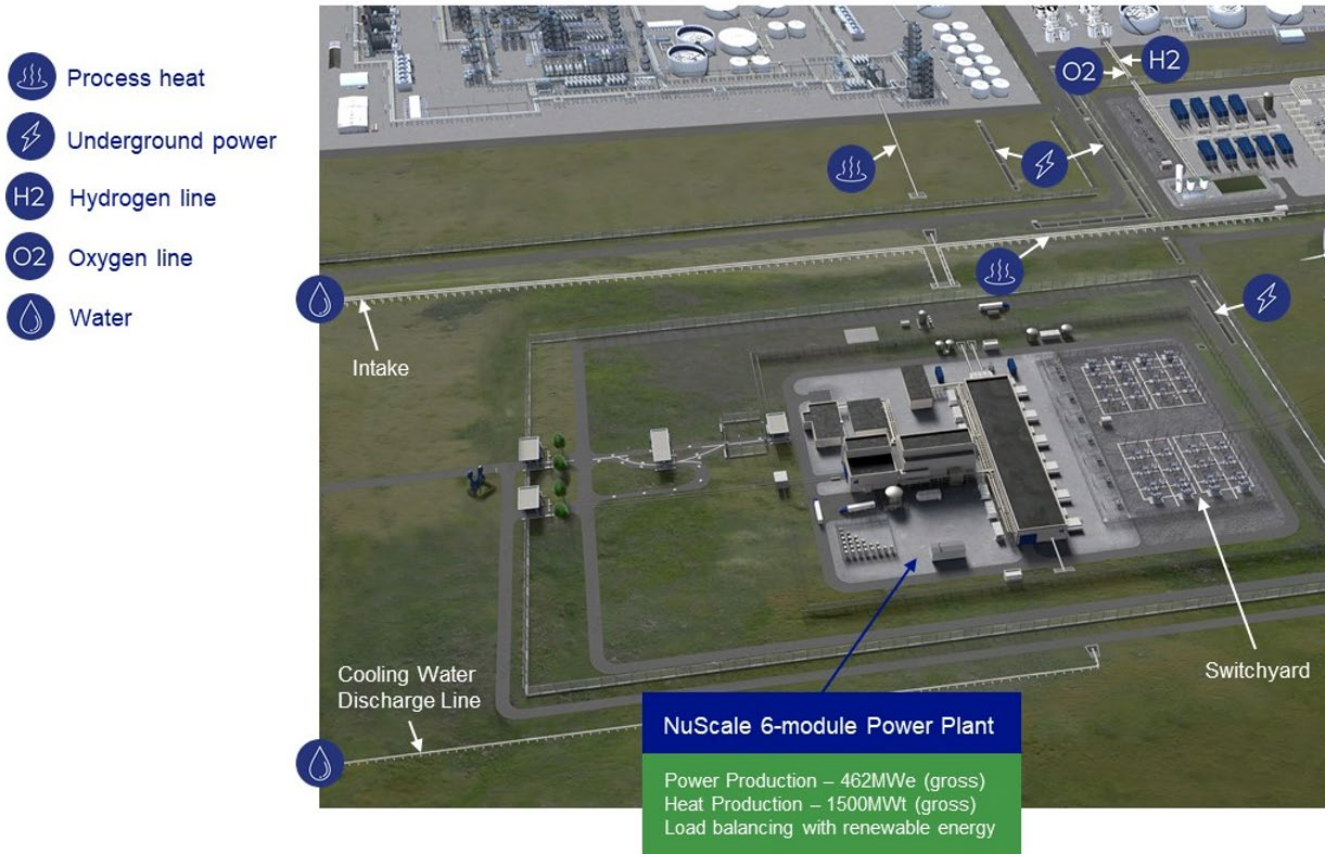
Beyond Baseload: NuScale Diverse Energy Platform

More Than Reliable Baseload and Load-following Electricity Generation



Reports for associated technical studies are available at: www.nuscalepower.com/technology/technical-publications

Assessing Integrated Energy Systems For Hydrogen, Ammonia, and Other Products



NuScale 6-module Power Plant

Using SOEC
- Total H2 Production 268 Metric Tons per day
- Total O2 Production 2128 Metric Tons per day

- NuScale signed contract with Shell Global Solutions (US) to conduct UAMPS Integrated Energy System (IES) using Hydrogen Energy Storage.
- Carbon-free Hydrogen and Ammonia pilot plant demonstration for the Ukraine sponsored by the U.S. Department of State.
  - ANL, Ukraine's Energoatom, National Security and Defense Council, and State Scientific and Technical Center for Nuclear and Radiation Safety, and private companies Clark Seed, Doosan Enerbility, FuelCell Energy, JGC Corporation, NuScale Power, Samsung C&T, and Starfire Energy.
- JGC/IHI NEXIP study on Hydrogen Production

Decarbonizing Industrial Heat is Crucial

- The industrial sector accounted **33% of total U.S. energy consumption** in 2021.
- Industrial heat makes up two-thirds of industrial energy demand and almost **one-fifth of global energy consumption.**
- Industrial heat is mostly **generated by fossil fuels** today, with limited options to efficiently produce high-temperature, high-pressure steam from clean energy sources.
- A NuScale Power Module generates **250 MWt thermal power** available in the form of large volume of superheated steam for industrial process applications.
  - A VOYGR-12 power plant generates 3 GWt thermal
- The unique combination of highly reliable, scalable power with off-grid operation and site boundary EPZ allows NuScale plants to be **located closer to the end user**.

Sources: U.S: Energy Information Administration: Use of energy explained, Energy use in industry, IEA: Clean and efficient heat for industry 2018

Limited Options for Decarbonizing Industrial Heat

- There are limited options to efficiently produce **high-temperature, high-pressure steam** from clean energy sources.
- **Producing heat from renewable electricity results in limited availability due to daily fluctuations.**
- **Biomass** has a large land-use footprint and the amount needed cannot be sourced sustainably.
- Traditional **large-scale nuclear power plants are not sited close to industrial end-users**, and therefore lose energy in transporting the heat.
- **Geothermal** energy also has location constraints.
- NuScale is collaborating with end users of steam, electric power, and hydrogen to assess and optimize **Integrated Energy Systems** (IES) capable of supporting the end user's clean energy goals at commercial scale.

Superheated Steam can be Used for Majority of Industrial Processes

- **50% of process heat use requires only 300ºC**, which can be derived directly from a NuScale Power Module.
- Superheated steam at 500ºC or higher is generated by elevating the 300ºC steam to the desired temperature using a relatively **small amount of energy** through compression and pass-through heaters.
- Raising the temperature of superheated steam requires relatively low power, compared to raising the temperature of water or saturated steam.
- Overall, the energy transfer efficiency is more than doubled compared to using electrical heaters alone.

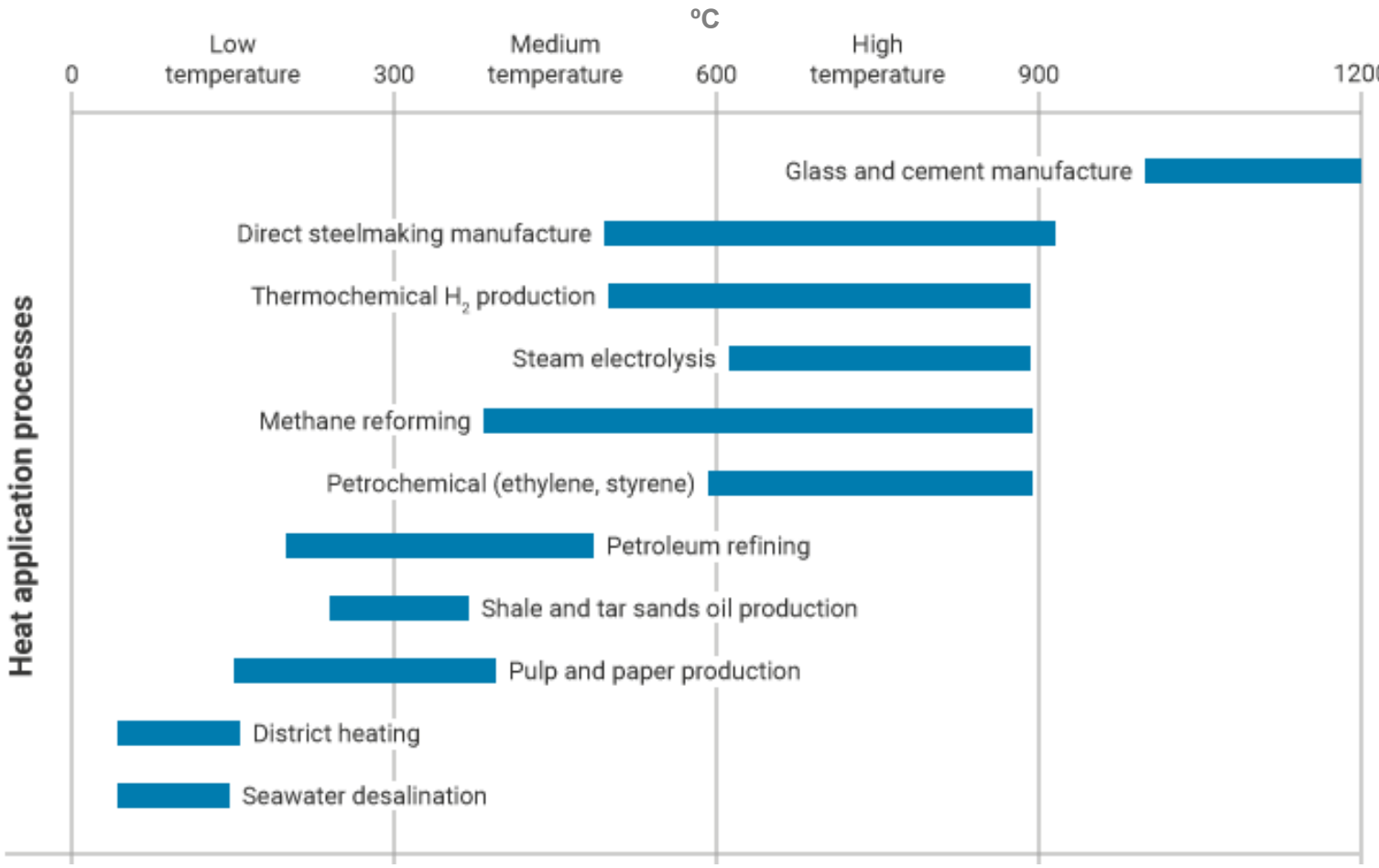
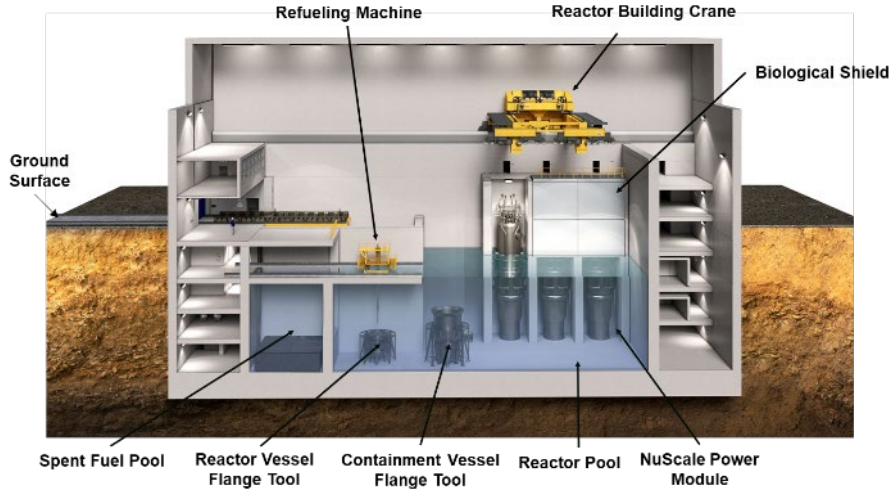


Image Source: International Atomic Energy Agency, Opportunities for Cogeneration with Nuclear Energy, 2017

NuScale Process Steam Production Rates at 500 °C, >1000 psia

- Many industrial processes require large quantities of steam at high pressure and high temperature.
- NuScale has performed an analysis to estimate a variety of steam production rates at corresponding pressures, temperatures, and NuScale Power Module electrical power outputs.
- **Steam compression** efficiently raises pressure and temperature.
- 1500 psia and 500 °C steam compression is technically feasible today.
  - A single NuScale Power Module can produce 500,000 lb/hr at these conditions.
  - VOYGR-12 plant can produce 924 MWe, 3 GWt, ~ 10 MLb/hr nominal.
- Higher pressure/temperature compression systems (2400 psia/650°C) are being evaluated.

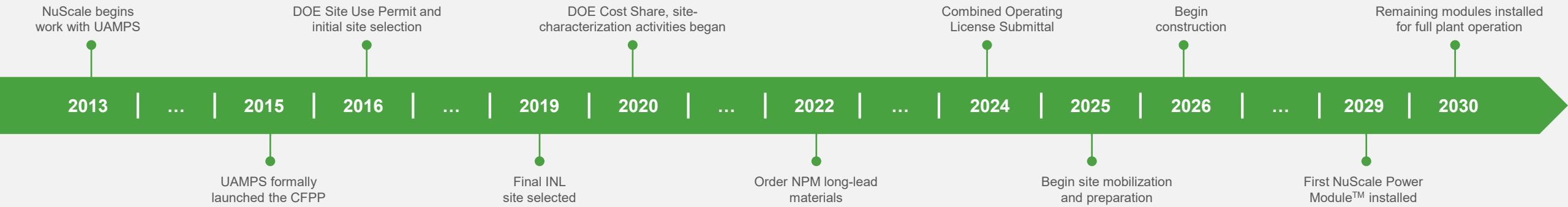


Utah Associated Municipal Power Systems (UAMPS) will be among the first commercial deployments of NPMs

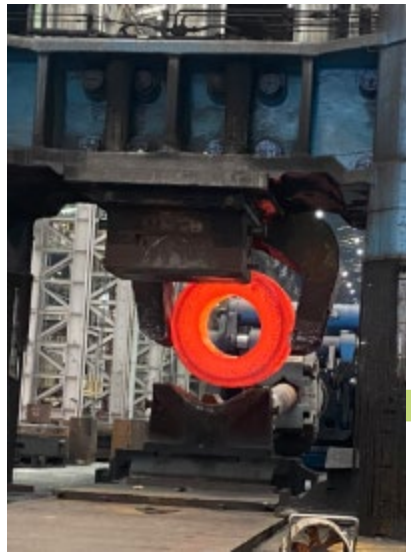
- First commercial deployment will be a VOYGR™-6 power plant at the Idaho National Laboratory for the UAMPS Carbon Free Power Project (CFPP)
- UAMPS provides energy services to community-owned power systems throughout the Intermountain West
- 27 of UAMPS's members, representing 7 states, are currently CFPP participants as of October 2022
- The CFPP will provide safe, reliable, and cost competitive clean energy to UAMPS members at a target LCOE of $58/MWh (in 2020 dollars), adjustable for cost indices and changes in inflation and interest rates
- In 2020, the DOE awarded a ~$1.4B cost share grant over ten years to UAMPS to build the CFPP

CFPP
CARBON FREE
POWER PROJECT

UAMPS Carbon Free Power Project Timeline

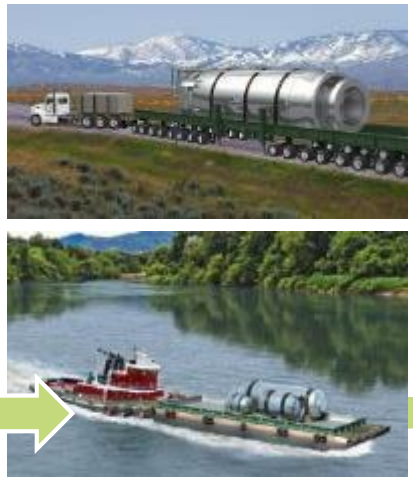


NPM Manufacturing Process Overview

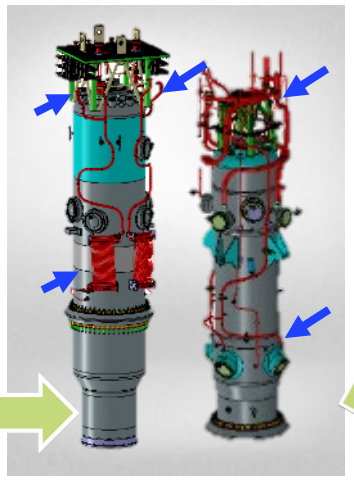


Ingot melt and forging

NPM pressure vessel & component manufacturing at various supplier locations



NPM pressure vessel & component transportation to site



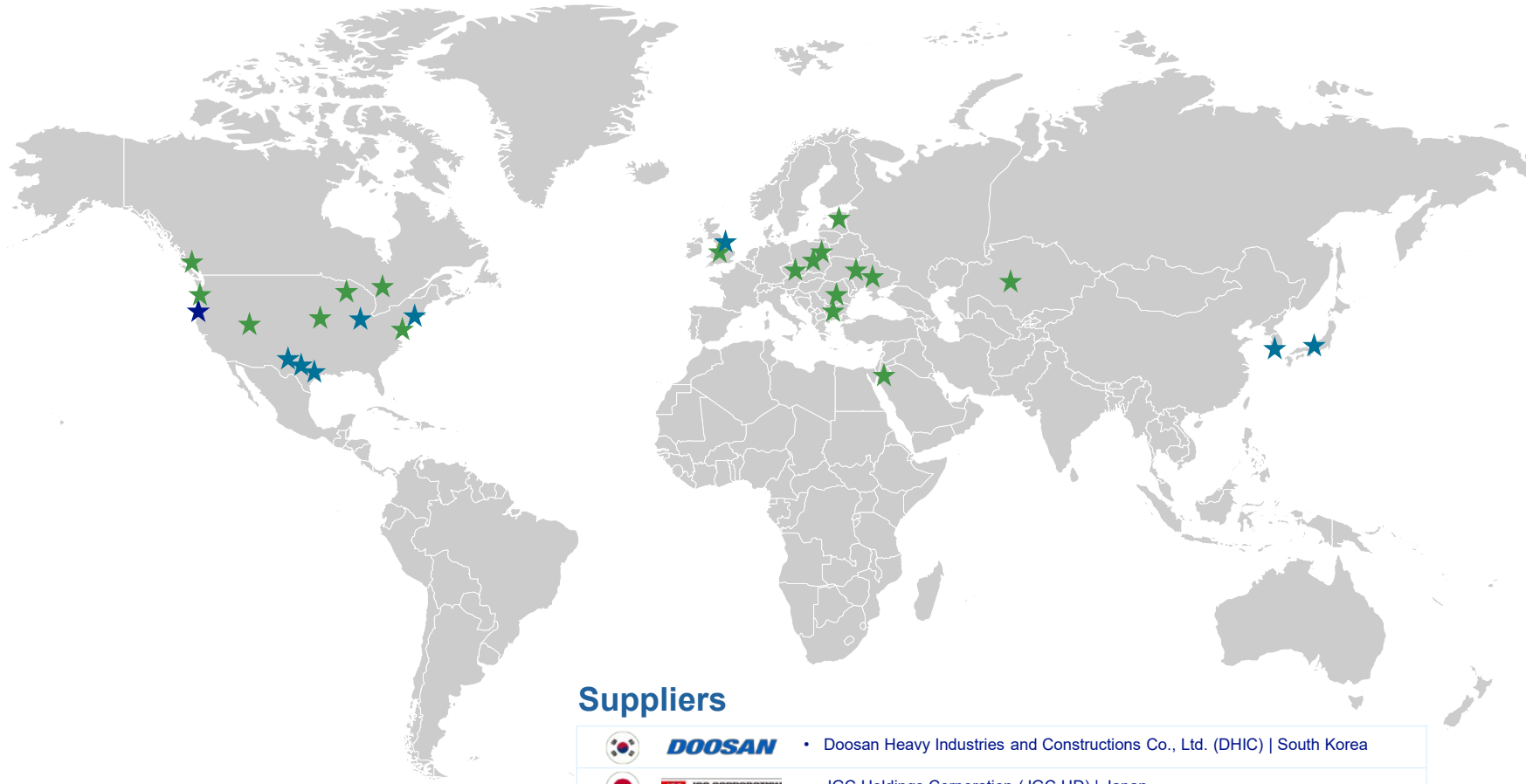
Assemble piping, valves, sensors, and cables to pressure vessels

Manufacturing complete & import to reactor building

Plant construction by EPC in parallel

Reactor Building Construction Complete

Rapidly Expanding Customer Opportunities



★ NuScale
★ MOU
★ Suppliers

Suppliers

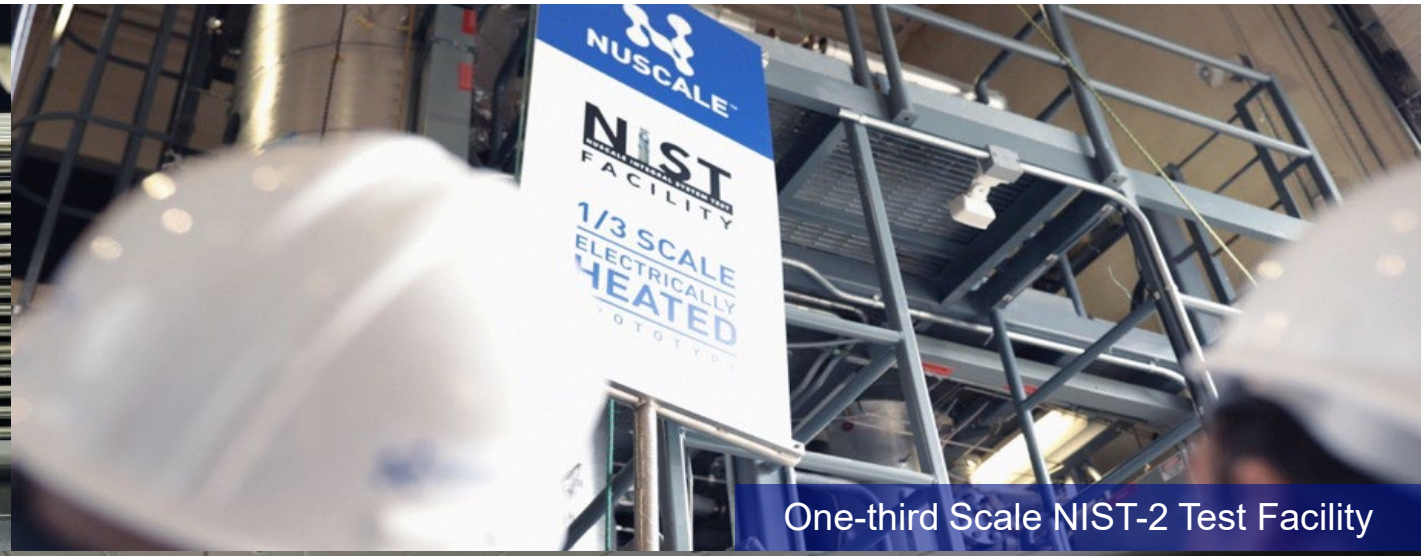
- Doosan Heavy Industries and Constructions Co., Ltd. (DHIC) | South Korea
- JGC Holdings Corporation (JGC HD) | Japan
- Sargent & Lundy | Illinois, USA
- IHI, Inc. | New York, USA
- Sarens Nuclear & Industrial Services, LLC | Texas, USA
- Ultra Electronics Energy | United States & United Kingdom
- Fluor | Texas, USA

MOU Customers

- Public electric utility | Washington, USA
- Generation and transmission cooperative | Wisconsin, USA
- Associated Electric Cooperative | Missouri, USA
- Utah Associated Municipal Power Systems (UAMPS) | Utah, USA
- Commercial nuclear power producer | Canada
- Canada's only private sector nuclear power producer | Ontario, Canada
- Ontario Power Generation (OPG) | Canada
- Jordan Atomic Energy Commission | Jordan
- Energoatom: State-owned nuclear power producer | Ukraine
- State Scientific and Technical Center for Nuclear and Radiation Safety (SSTC NRS) | Ukraine
- Kozloduy Nuclear | Bulgaria
- KGHM Polska & Piela Business Engineering Coal refurbishment & process heat | Poland
- Getka Group & UNIMOT SA: Coal plant refurbishment | Poland
- S.N. Nuclearelectrica: State-owned utility | Romania
- State-owned utility | Czech Republic
- Kazakhstan Nuclear Power Plants (KNPP) | Kazakhstan
- Fermi Energia | Estonia

The Future of Energy is Here

Fuel Assembly Bundle



One-third Scale NIST-2 Test Facility

NuScale Control Room Simulator

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