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Power for all humankind

NuScale Micro-Reactor R&D

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Derick Botha
Innovation Manager
Office of Technology

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Who is NuScale Power?

- NuScale Power was formed in 2007 for the sole purpose of completing the design and commercializing a small modular reactor (SMR) – the NuScale Power Module™.
- Initial concept had been in development and testing since the 2000 U.S. Department of Energy (DOE) MASLWR program.
- Fluor, global engineering and construction company, became lead investor in 2011.
- In 2013, NuScale won a $226M competitive U.S. DOE Funding Opportunity for matching funds.
- >400 patents granted or pending in nearly 20 countries.
- >350 employees in 6 offices in the U.S. and 1 office in the U.K.
- Making substantial progress with a rigorous design review by the U.S. Nuclear Regulatory Commission (NRC).
  - Phase 4 of NRC Review is on schedule for completion December 2019.
- Total investment in NuScale to date ~US$800M.
- Doosan Heavy Industries and Construction and Sargent and Lundy signed MOUs as strategic partners in 2019
- On track for first plant operation in 2026 in the U.S.

NuScale Engineering Offices Corvallis

One-third scale NIST-1 Test Facility

NuScale Control Room Simulator

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NuScale Micro-Reactor Concepts

Image courtesy of Third Way Nuclear Reimagined

10-50 MWe Micro-NuScale Power Module™

- **Builds on NuScale's existing technology; intended for:**
  - Supplying power to communities with small grids,
  - Remote and off-grid communities
  - Off-grid industrial facilities
  - Long duration remote mining
  - Stationary / permanent military installations
- **Design imperatives include:**
  - Reduced construction time
  - Simplified operations
  - Increased fuel cycle length

1-10 MWe Heat Pipe Reactor

- **Simple and inherently safe compact heat pipe cooled reactor concept** that require little site infrastructure, can be rapidly deployed, and are fully automated during power operation
- **Applications include:**
  - Remote small off-grid communities with seasonal fuel transportation delivery limitations
  - Remote mining operations with a short lifespan
  - Temporary power for disaster relief
  - Power in space

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Development Focus Areas

- Materials compatibility assessment and testing
- Qualification of components fabricated using advanced manufacturing
- Nonnuclear testing
  - Separate effects testing and characterization of reactor components
  - Heat pipe, heat exchanger and power train integration
- Fuel irradiation program
- High temperature moderator characterization
- Structural material irradiation program
- ASME code case development

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Derick Botha
Innovation Manager
dbotha@nuscalepower.com

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