


Electricity Committee

NARUC  Summer
Policy Summit



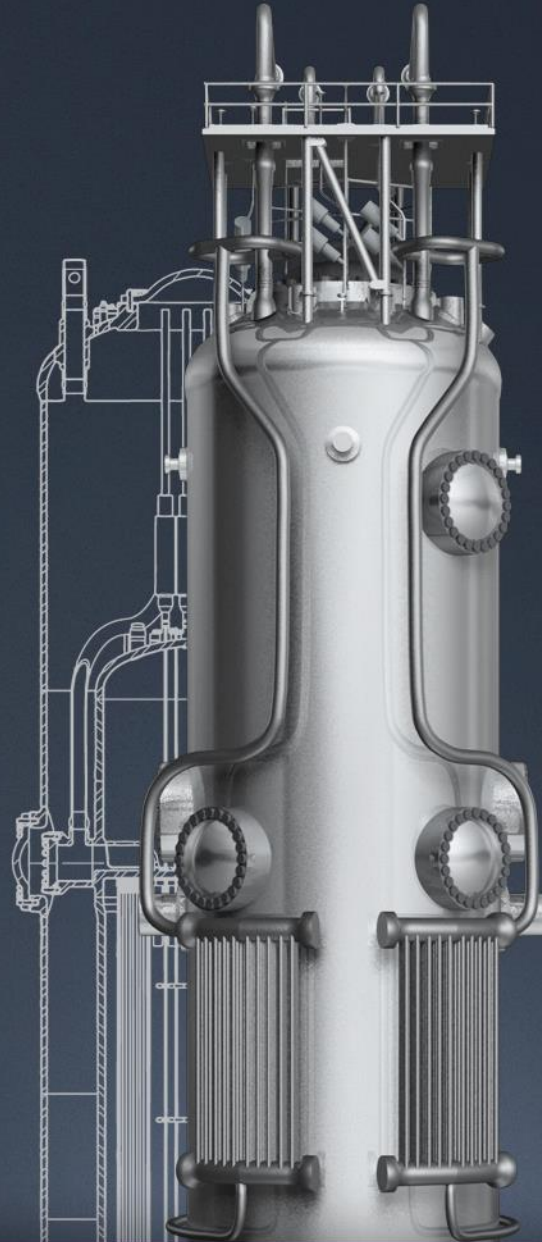
Electricity Committee and Subcommittee on Nuclear Issues-Waste Disposal Nuclear Power Updates



July 17, 2017

NuScale's Small Modular Reactor

Jack Bailey
VP NuScale Power



Acknowledgement & Disclaimer

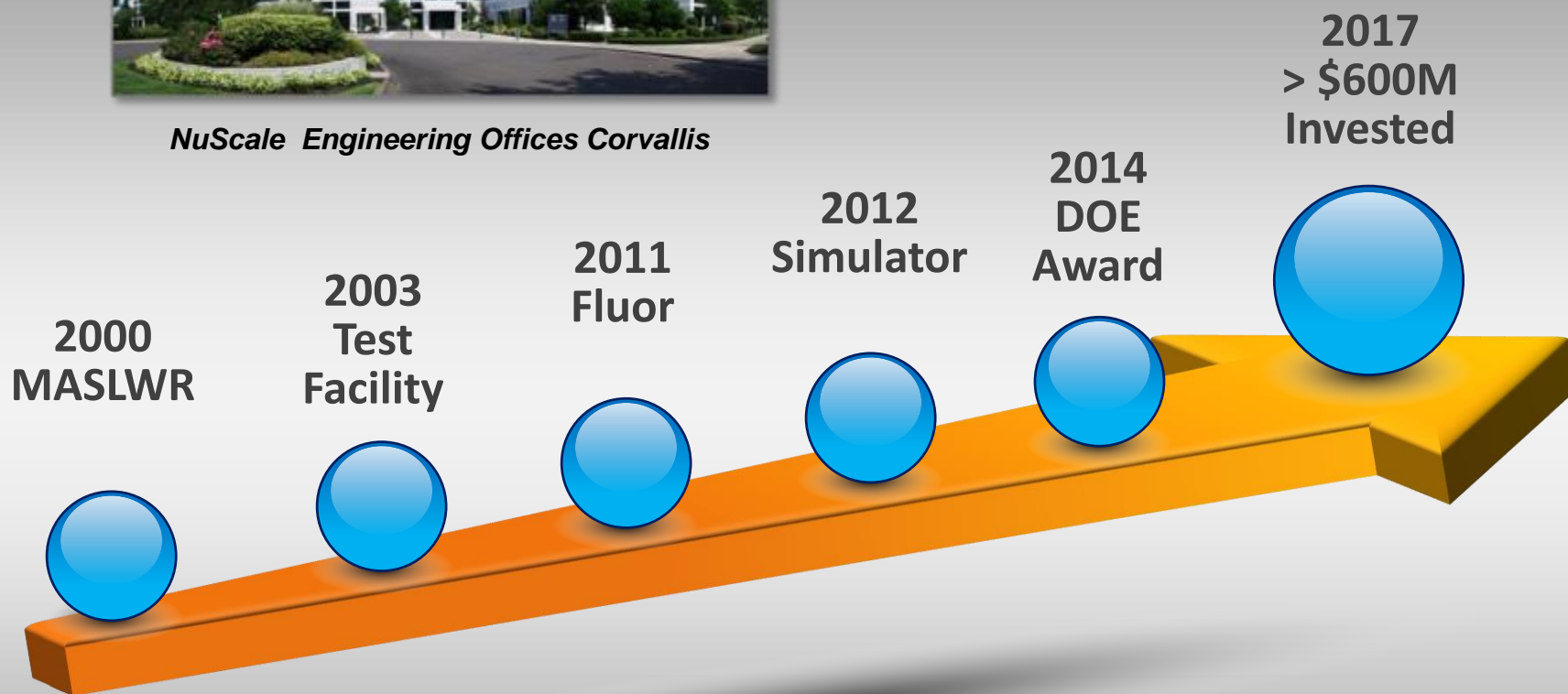
This material is based upon work supported by the Department of Energy under Award Number DE-NE0000633.

This report was prepared as an account of work sponsored by an agency of the United States (U.S.) Government. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U.S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U.S. Government or any agency thereof.

NuScale Power History



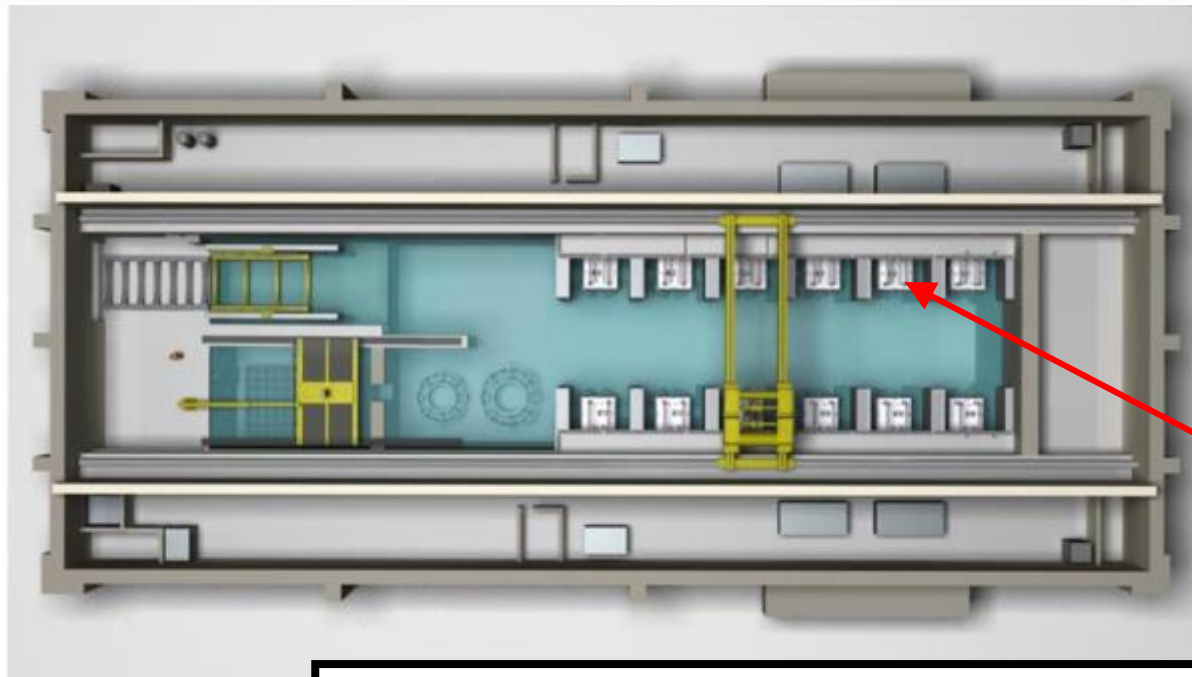
NuScale Engineering Offices Corvallis



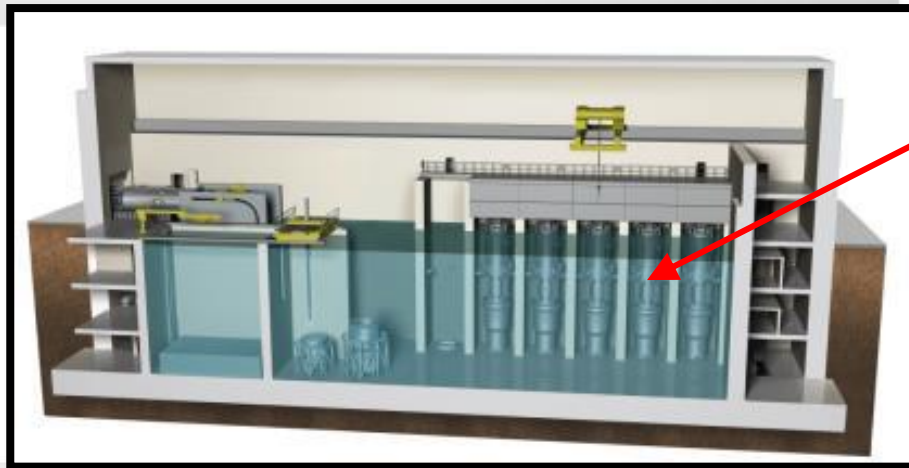
DCA: Submitted and Accepted by NRC



What is a NuScale Power Module?

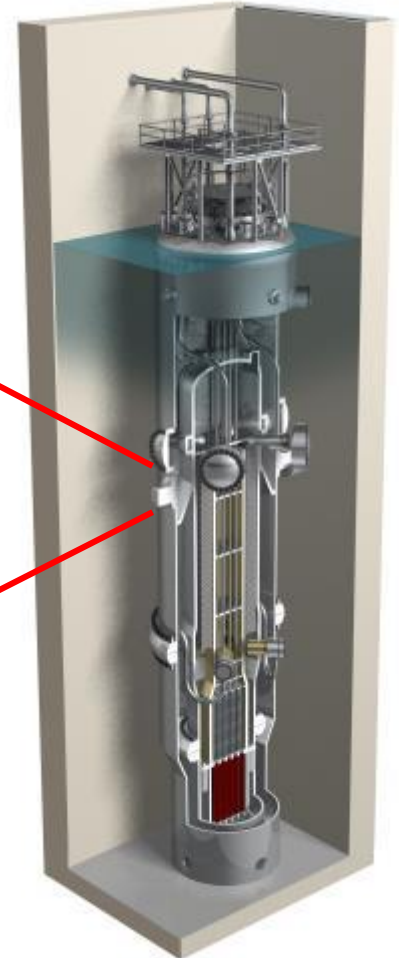


Top
View



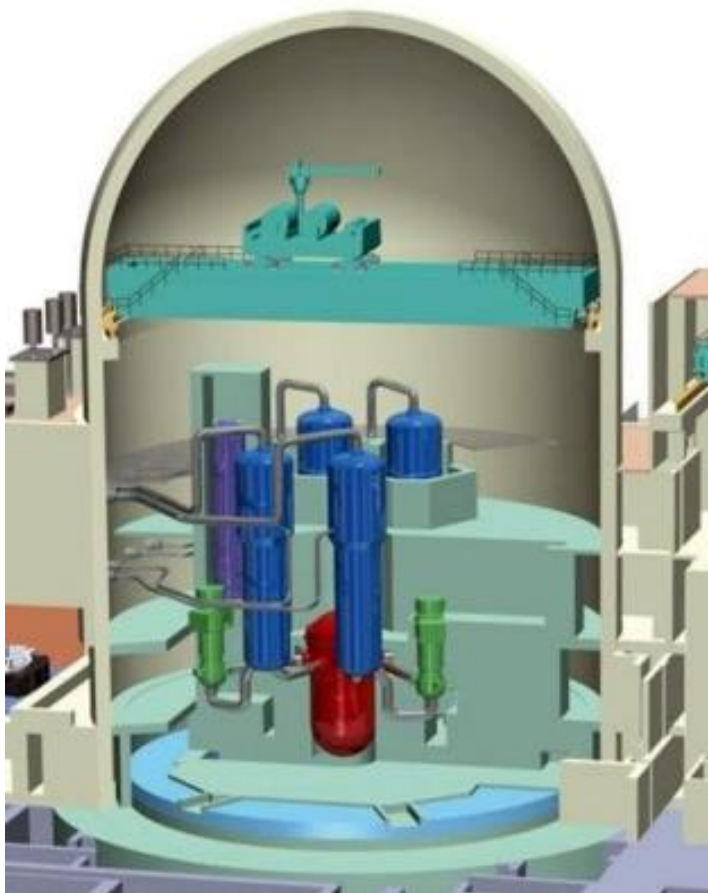
Cutaway
View

NPM
50 MWe (gross)



Size Comparison

**Typical Pressurized-Water Reactor
Containment & Reactor System**



*Source: NRC

NuScale Power Module
Combined Containment Vessel and
Integral Reactor System



Factory Fabrication



NUSCALE POWER MODULE™
FACTORY ASSEMBLY

Transportable

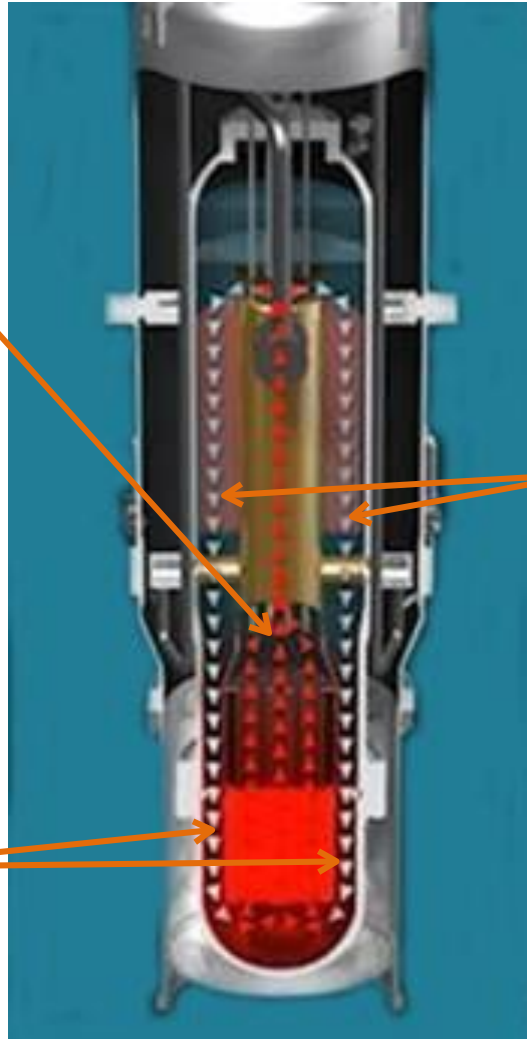


Coolant Flow Driven By Physics

Convection

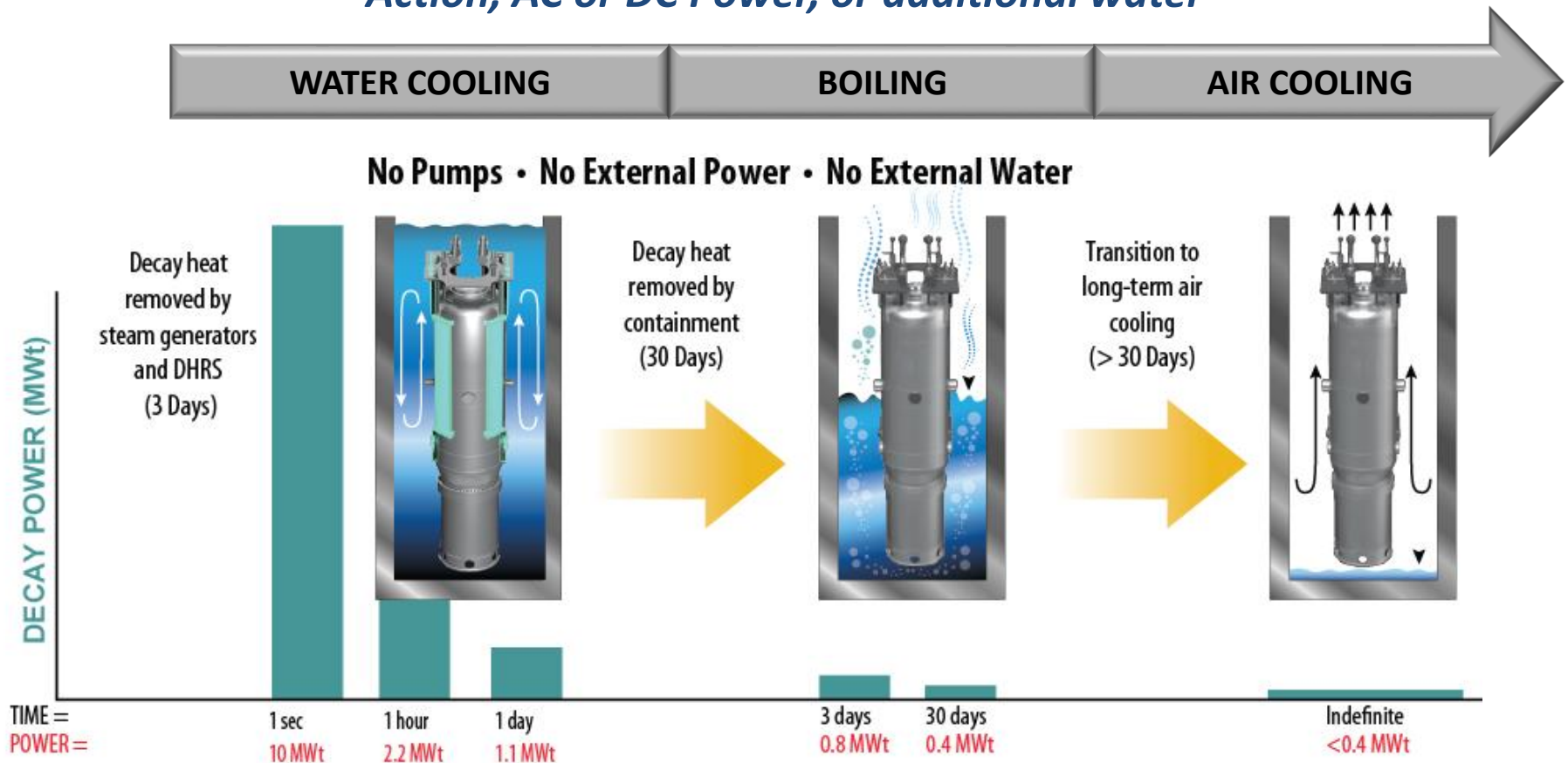
Conduction

Gravity



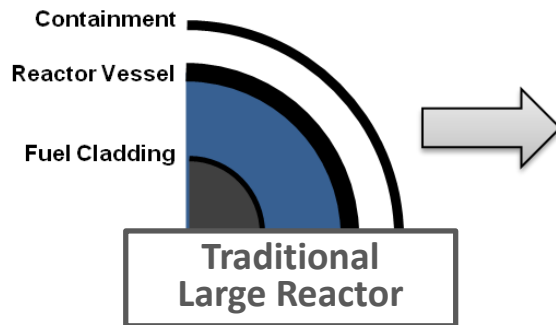
Triple Crown of Nuclear Safety

Reactors cooled for an unlimited time without Computer or Operator Action, AC or DC Power, or additional water

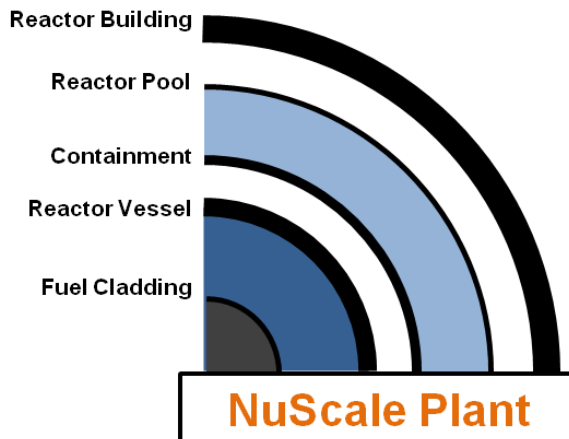


Smaller Emergency Planning Zone Due to Enhanced Safety

Barriers Between Fuel and Environment



Current



Site Boundary EPZ



Goal

- *Passive Safety*
- *Reactor core < 1/20 size of large reactors*
- *Additional Fission Product Barriers*
- *Significant Delay in Release of Radiation*

Small Footprint

34.5 acres within the
protected area fence

Reactor Building

12-Module
600 MW Plant

Flexible Operation



NuScale Adds Good Jobs

Manufacturing



Construction



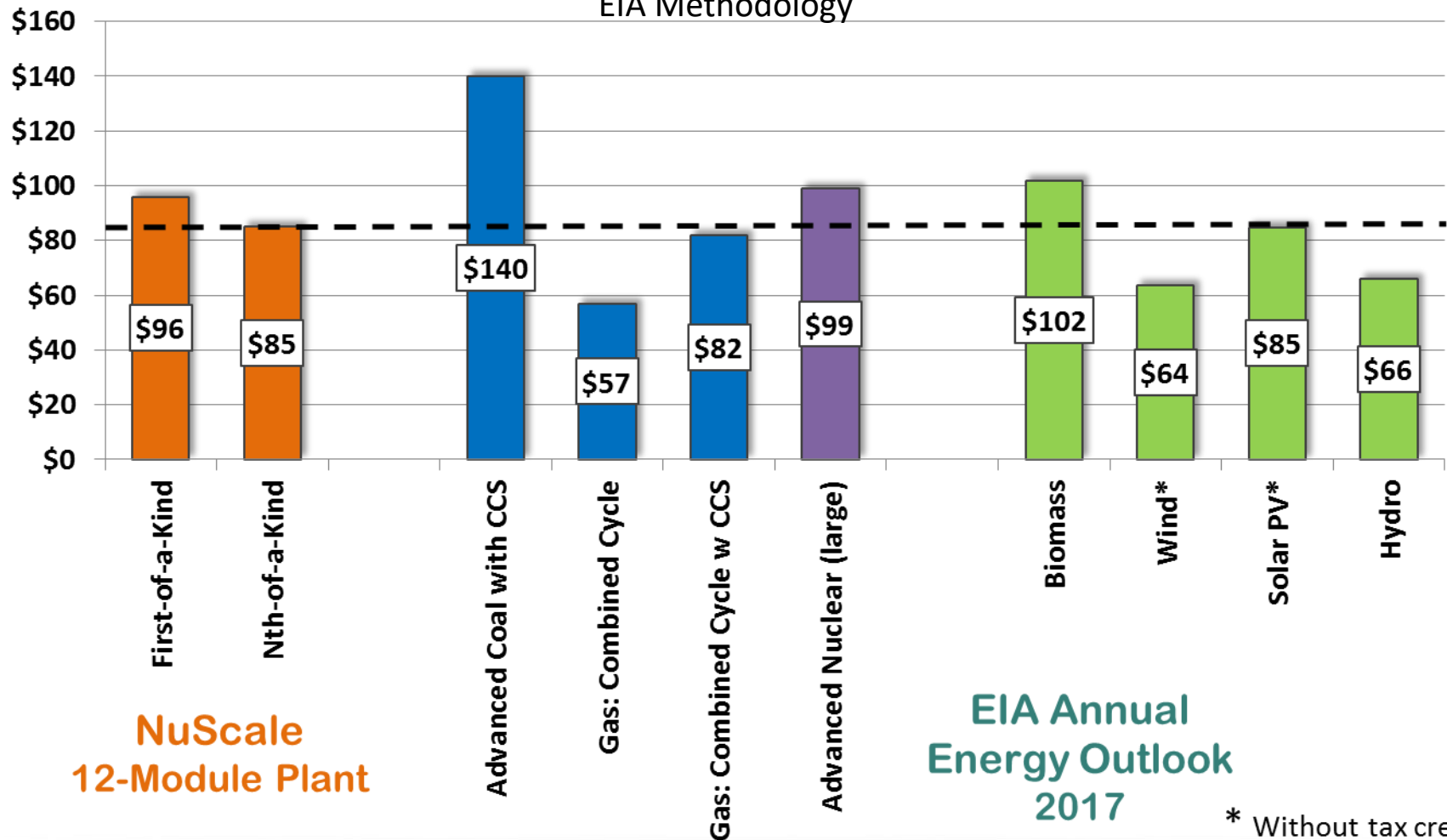
Operations



Competitive Economics

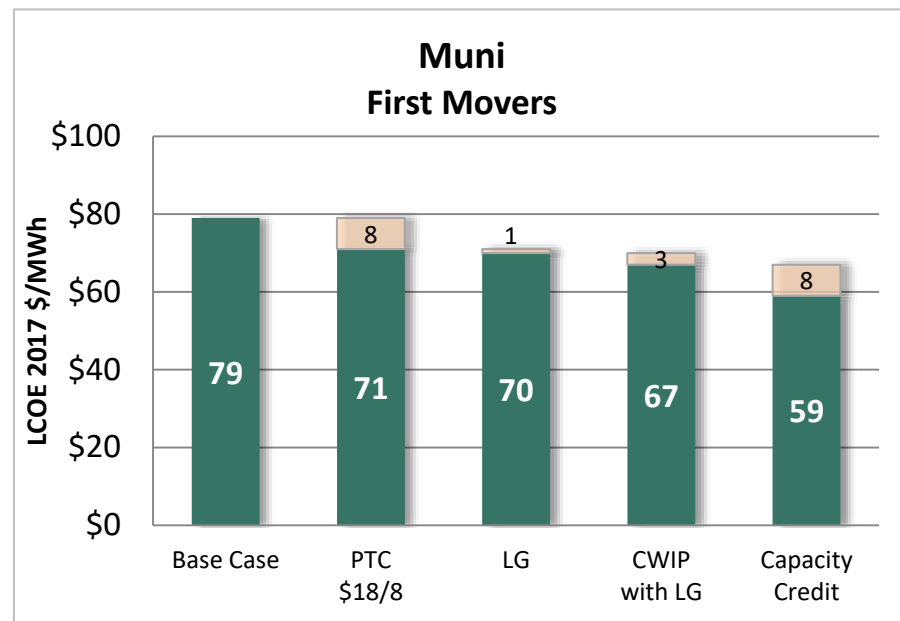
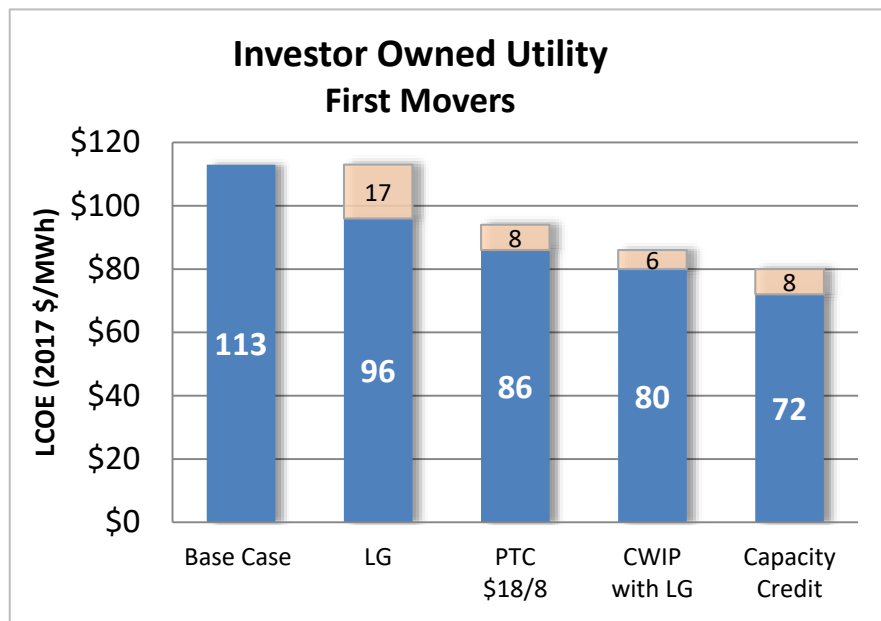
Estimated Average U.S. Levelized Cost of New Generation Resources

2022 Costs in 2016 \$/MWh
EIA Methodology



Summary of Potential Policy Impacts

Generic SMR Cases using NEI SMR Financial Model (2017) To Show Relative Benefit of Various Policy Options



LG = Federal Loan Guarantees
Capacity Credit = Payment for
security /reliability of \$100/kw-yr

First Deployment: UAMPS CFPP

PROGRAM
WIN

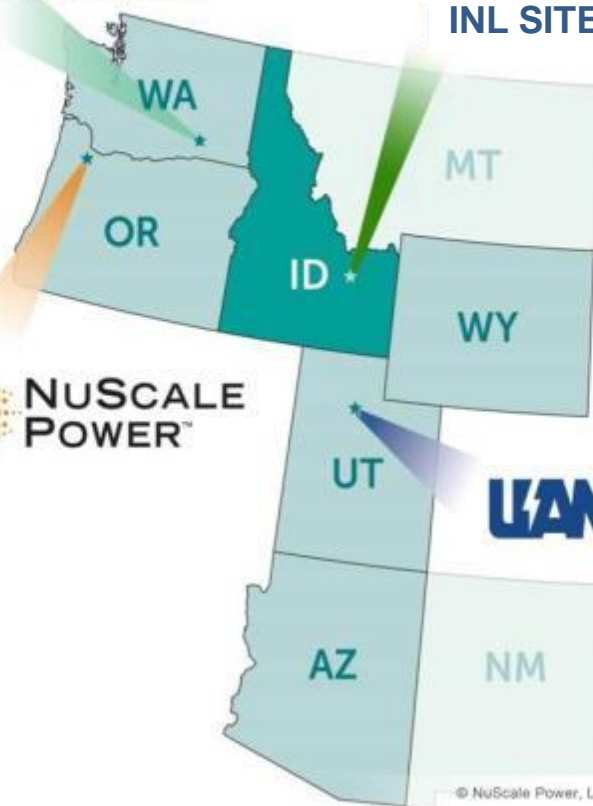
Western Initiative for Nuclear

 **ENERGY
NORTHWEST**

INL SITE

 **NUSCALE
POWER™**

UAMPS



© NuScale Power, LLC. All Rights Reserved.

NuScale Diverse Energy Platform Initiative

Mission Critical Facilities



Hydrogen Production



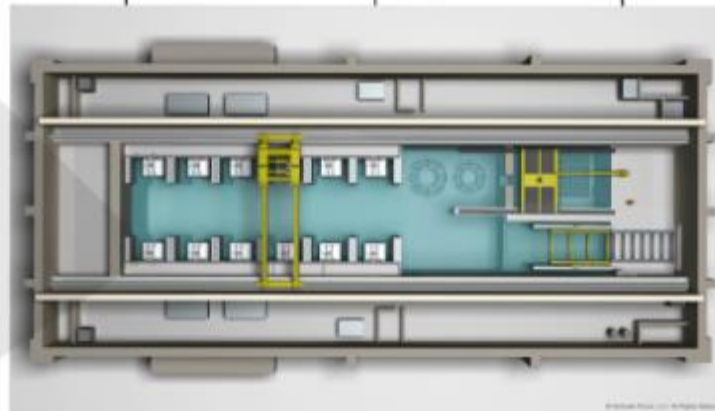
Desalination



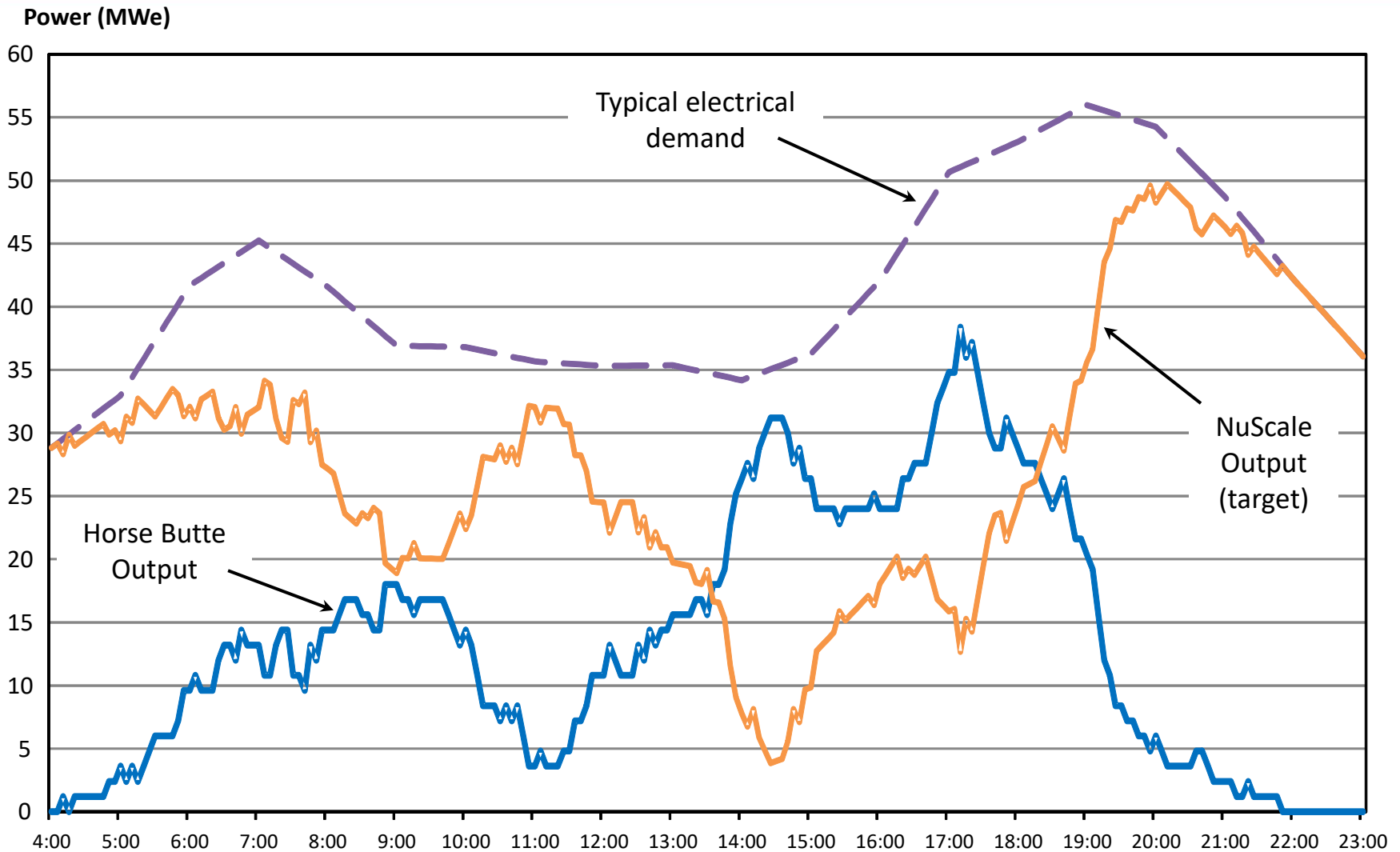
Wind Integration



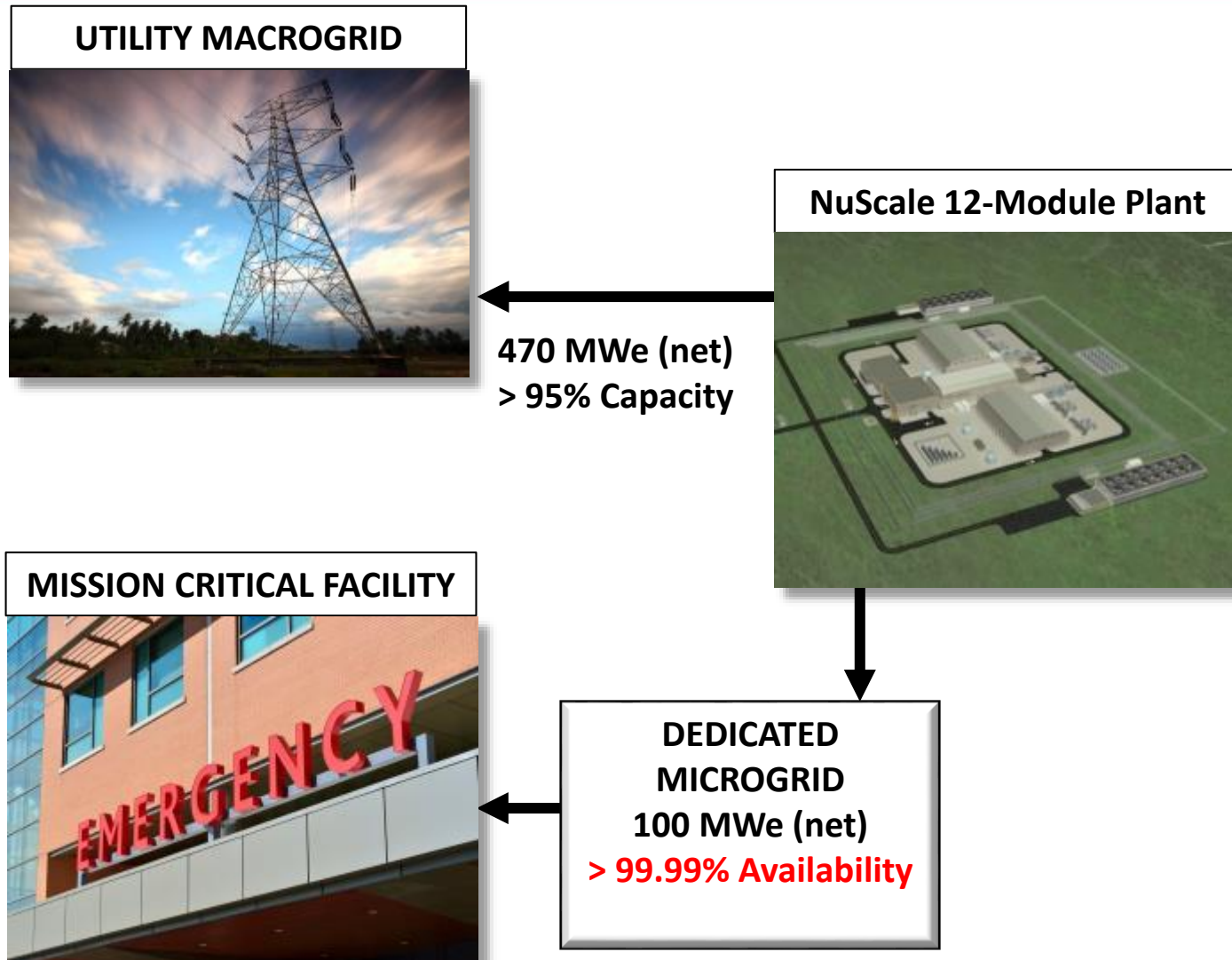
Oil Refineries



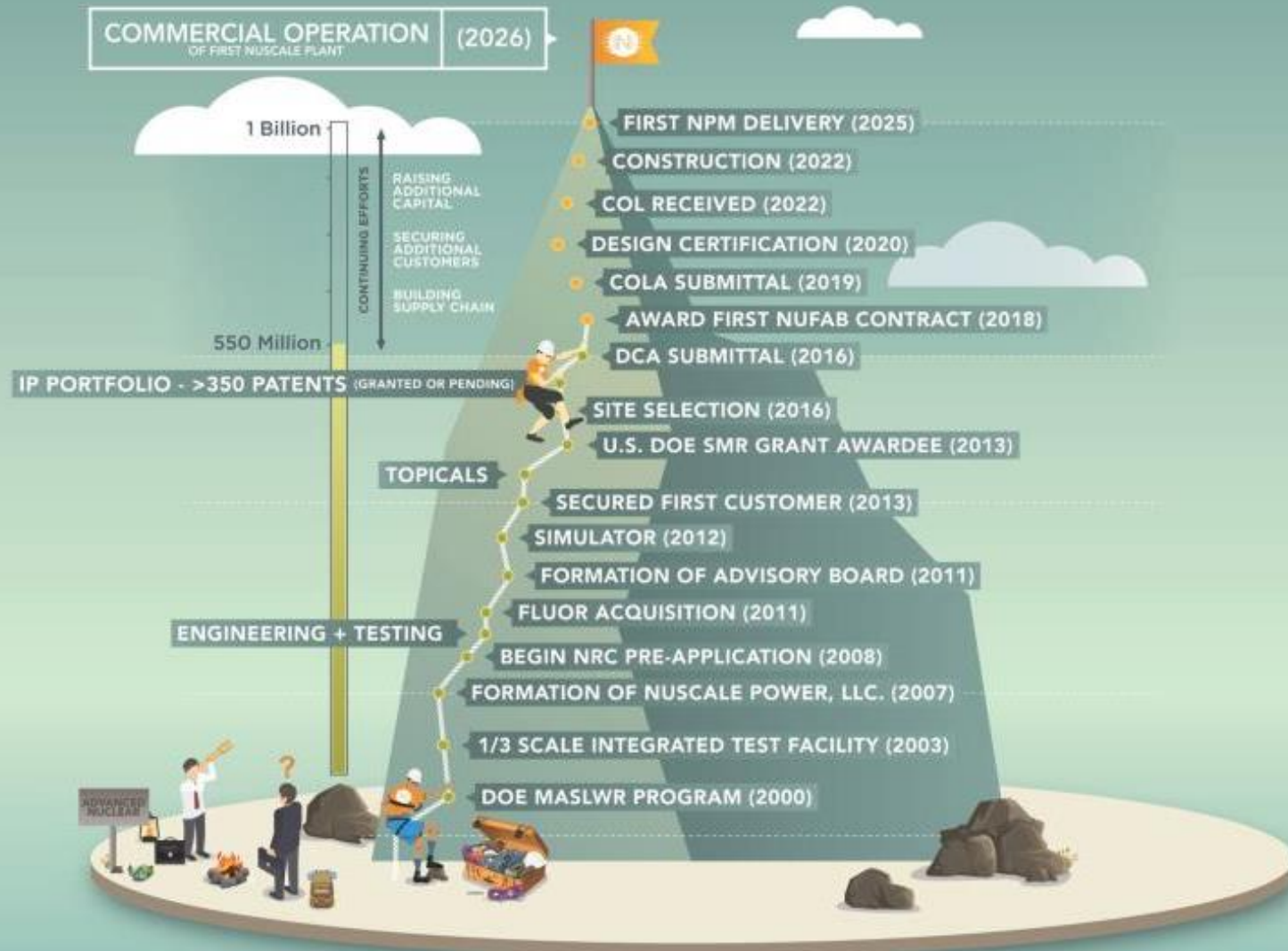
Load-Following with Wind



NuScale Reliable Power for Mission Critical Facilities



Blazing the Trail to Commercialization



6650 SW Redwood Lane, Suite 210
Portland, OR 97224
971.371.1592

1100 NE Circle Blvd., Suite 200
Corvallis, OR 97330
541.360.0500

11333 Woodglen Ave., Suite 205
Rockville, MD 20852
301.770.0472

2815 Coliseum Centre Dr
Charlotte, NC 28217
980.349.4804

1933 Jadwin Ave., Suite 130
Richland, WA 99354

1st Floor Portland House
Bressenden Place
London SW1E 5BH
United Kingdom
+44 (0) 2079 321700

<http://www.nuscalepower.com>

Twitter: @NuScale_Power





Electricity and Energy Resources & the Committee Environment Committees