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TYPES OF NUCLEAR REACTORS:

Test Reactors

Demonstration Reactors

Commercial Power Reactors

	Test Reactors	Demonstration Reactors	Commercial Power Reactors
FUNCTION	Science machines for testing nuclear fuels, materials and sensors	Reactors that show the integrated performance and economics of advanced nuclear technologies	Power reactors that supply more than 50% of the nation's carbon-free electricity
LICENSING	U.S. Department of Energy (DOE) or U.S. Nuclear Regulatory Commission (NRC)	NRC (commercial demonstrations) DOE (technology demonstrations)	NRC
WHAT IS THE REACTOR OPTIMIZED TO PRODUCE?	 High levels of neutron radiation	 Electricity and/or heat	 Electricity <small>(Several power reactors in the U. S. are in the process of being retrofitted for hydrogen production)</small>
WHAT IS THE GOAL OR END PRODUCT?	Data for developing and licensing new nuclear fuels and technologies	Verifying the performance, reliability and economic viability of new nuclear technologies	Electricity for the grid
NUMBER OF OPERATING REACTORS	31 3 7 <small>University reactors Federal non-DOE DOE</small>	0 <small>Demonstration</small>	93 <small>Commercial</small>
EXAMPLES	Operational: Advanced Test Reactor (ATR) High Flux Isotope Reactor (HFIR) MIT Reactor	Operational: None Planned: TerraPower Sodium Reactor Oklo Aurora Reactor X-energy Xe-100 Reactor MARVEL	Operational: Palo Verde Generating Station Peach Bottom Atomic Power Station Planned: NuScale Power VOYGR small modular reactor
APPROXIMATE POWER OUTPUT	1-300 MWt <small>less than 1 to 300 MW thermal</small>	1.5-500 MWe <small>1.5 to 345-500 MW electric</small>	300-1,400 MWe <small>300 to about 1,400 MW electric (Operating or licensed U.S. reactors)</small>
TIMELINE	NOW <small>ATR, HFIR</small> 2032 <small>Versatile Test Reactor operating</small>	2020s	NOW or 2020s <small>NuScale Power VOYGR small modular reactor</small>
REQUIRED INFRASTRUCTURE	Test locations for experiment vehicles, experiment handling and storage facilities, access to post-irradiation examination facilities	Varies, but water, electricity distribution, heat storage, electricity storage, heat distribution	Access to water, electricity distribution