

TERRAPOWER: A DECADE OF GROWTH AND INNOVATION

TerraPower® is a nuclear innovation company based in Bellevue, Washington. TerraPower's activities in the fields of nuclear energy and related sciences are yielding significant innovations in the safety and economics of nuclear power, hybrid energy and medical applications. The company originated with Bill Gates and a group of like-minded visionaries who evaluated the fundamental challenges to raising living standards around the world. They recognized energy access was crucial to the health and economic well-being of communities, and decided that the private sector needed to take action and create energy sources that would advance global energy deployment.

TerraPower continues to grow and diversify, now marking 10 years of innovation.

The company's 150 full-time employees work with an impressive array of American suppliers, universities, laboratories and consultants. These partnerships help yield significant breakthroughs and are fundamental to building new nuclear supply chains in the United States and elsewhere.

MOVING QUICKLY TO MEET OUR ENERGY NEEDS

Meeting global demand for clean energy solutions is a massive undertaking and requires both significant and creative thinking. That's why TerraPower has taken a whole-system approach to advancing our technologies, identifying critical supplier requirements and progressively reducing risk throughout the development cycle. For example, TerraPower's first phase system-level simulator represents a significant, exciting step forward in the path to constructing advanced reactors. This impressive tool puts engineers in the control room of a virtual reactor, allowing for in-depth simulation and optimization of the traveling wave reactor's (TWR) operation from start-up to full power.

Using the simulator as a design tool, developers can evaluate the real-time plant response under varying design parameters. Conceptual designs can be fully evaluated to ensure safety and performance before progressing into engineering, procurement and construction. Over the past decade, the company's state-of-the-art designs, computer simulations and utilization of its 10,000-square-foot laboratory have made TerraPower a leader in its field.

INNOVATING WHERE IT MATTERS MOST

Applying Our Core Competencies

Advanced Reactor Development

Fuels and Materials Development

Component Design and Qualification

Technology Development and Qualification

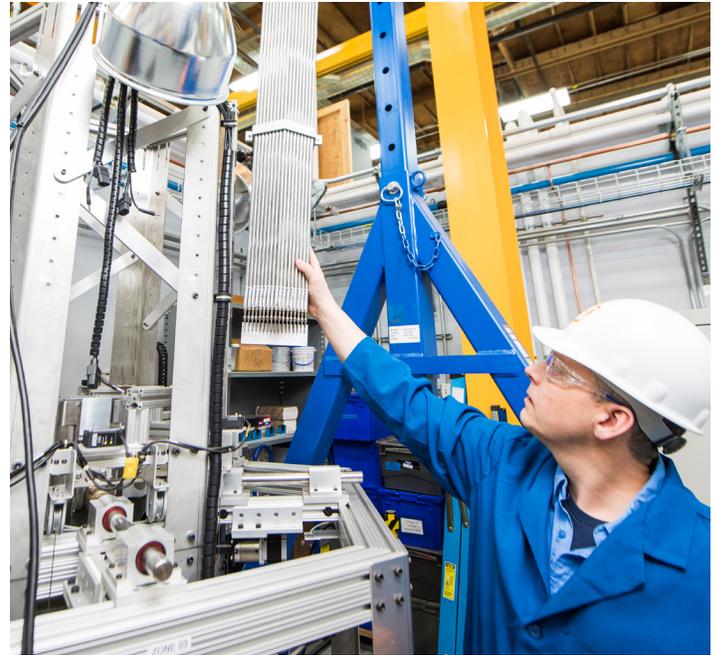
Radiochemistry

By 2030, the world's population is expected to reach 8.5 billion, and electricity demand is expected to increase 48 percent by 2040. With nearly 1.2 billion people without access to electricity today, the market for better energy options exists now.





An engineer analyzes data results from the simulator.



A technician places a full-scale test fuel pin bundle in a test apparatus housed in TerraPower's lab.

NEXT STEPS ON FLAGSHIP ENERGY PROJECTS

TerraPower's mission is to be a world leader in new nuclear technologies, while developing innovators and future leaders in the nuclear field. TerraPower is committed to bringing sustainable, affordable and safe energy to address global issues. The company believes it will be able to achieve this goal through the development of high impact products like the TWR and the molten chloride fast reactor (MCFR) technologies. Utilizing its mastery of nuclear technology, TerraPower will be a breakthrough player in industrial and human health applications.

The first TWR plant is expected to be operational in the mid 2020s, with commercial plants constructed and licensed thereafter. This is 10 to 20 years earlier than projections for other Generation IV technologies. The ability of the TWR technology to use depleted uranium as fuel will save natural resources, reduce waste and simplify the traditional nuclear fuel cycle.

Complementing the significant progress on the TWR design, the MCFR project recently progressed into pre-concept design and testing. This reactor aims to increase efficiency and improve on clean energy options for industry. It uses a liquid form of chloride salt that will act as both the fuel and coolant. Both reactor technologies will reduce or eliminate the need for mining and enrichment facilities, reprocessing plants and storage facilities.

SEEKING SOLUTIONS

Transformative innovation is at the heart of TerraPower's mission. TerraPower relies on modern computing and a cadre of talented experts to expand the boundaries of scientific possibility and deliver results. Behind each of its innovations, technologies and programs, TerraPower brings together diverse strengths and experiences. Together, a multidisciplinary team explores new approaches to answer the world's most vexing problems, inventing new processes and products that can find commercial application. Whether focused on energy, environmental or other nuclear science possibilities, the company will continue to confront the world's most pressing challenges head-on.

Revised June 2017

