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This document discusses the recent advancements, policy support, and future prospects of nuclear energy in the United States and globally.

The Future of Nuclear Energy in the U.S.

A comprehensive overview of recent advancements, policies, investments, and global efforts to expand and modernize nuclear energy for a sustainable and secure future.

Industry Momentum and Technological Progress

The nuclear industry is experiencing significant growth driven by government support, private investment, and ongoing projects.

- Four Executive Orders from President Trump accelerated nuclear technology development.
- Strong state-level support, including tax credits and energy plans, is boosting nuclear capacity.
- 90 projects are in development across North America; 8 are already breaking ground.
- Many projects aim to start by 2030.
- Major projects include Kairos Power's Hermes reactor and TerraPower's Natrium reactor.
- Industry is capable of building at scale, with demonstrated innovation, capital, and construction activity.
- 95% of current reactors are expected to operate for 80+ years; new reactors may last beyond 2100.
- Reactors built now will power future generations and a world beyond current imagination.

Regulatory Modernization and Industry Support

Efforts are underway to modernize nuclear regulations to facilitate expansion.

- The NRC has cut license renewal timelines and review times by over 50%.
- Inspection hours reduced by 40% with new frameworks suited for advanced reactors.
- Fast review processes for designs like Kairos Hermes and X-energy XE-100.
- The NRC approved the Natrium reactor review 9 months ahead of schedule.
- The first license renewal for Duke Energy's Robinson Unit 2 was completed faster than ever.
- The U.S. aims to replace outdated regulations with flexible, future-ready frameworks.
- The goal is to support quadrupling nuclear capacity by 2050, including restarting closed plants and deploying advanced reactors.

Global Nuclear Energy Expansion

International partnerships and investments are expanding nuclear capacity worldwide.

- The U.S. signed trade agreements with Japan, UK, and Poland to promote nuclear exports.
- Japan plans to invest $40 billion in SMRs; GE Vernova and Hitachi are involved.
- Poland is building its first reactor with Westinghouse and Bechtel.
- Countries like Canada, Hungary, Bulgaria, Taiwan, Italy, Philippines, El Salvador, and Saudi Arabia are expanding or restarting nuclear programs.
- The European Commission and World Bank recognize nuclear as a strategic energy solution.
- Finland and Sweden are developing deep nuclear repositories.
- Global leaders see nuclear as essential for energy security and prosperity.

Investment and Private Sector Growth

Massive investments are fueling nuclear expansion domestically and internationally.

- U.S. government pledged $80 billion for Westinghouse reactors, plus billions for uranium enrichment and plant restart projects.
- States allocated hundreds of millions for nuclear projects, e.g., Texas, Tennessee, Wyoming.
- Private sector projections estimate $2.2 trillion in nuclear investments through 2050, up 47% from last year.
- Nuclear startups raised nearly $3 billion in 2025; X-energy's IPO was the largest nuclear public offering.
- Major tech companies like Meta, Google, and Amazon are investing in nuclear power and collaborations.
- Private investments are also supporting fuel supply chain projects, including uranium enrichment facilities.
- International investments include South Korean, Korean, and other global partnerships to expand supply chains and build reactors.

Workforce Development and Project Scaling

Expanding the nuclear workforce is critical for scaling projects and innovation.

- The workforce needs to triple by 2050.
- Union apprenticeship programs are at their highest since the 1950s.
- Over 8,000 workers built Vogtle Units 3 and 4; new projects are creating thousands of jobs.
- Restarting and reinforcing existing plants, such as Palisades and Crane, are part of the strategy.
- Innovations include digitizing control systems and leveraging AI for smarter construction.

- New projects like the Abilene Christian University molten salt reactor demonstrate educational and research advancements.
- Building a sustainable pipeline of projects and talent is essential for long-term growth.

Building a Sustainable Nuclear Future

The industry aims to build a resilient, innovative, and sustainable nuclear energy system.

- 20% of U.S. electricity is currently generated by nuclear; future work will increase this share.
- Restarting closed plants and deploying advanced reactors are key strategies.
- New reactors like Palisades, Crane, and the Abilene M-S-R are examples of progress.
- The industry emphasizes safety, efficiency, and innovation, including AI and digital upgrades.
- The goal is to create a generational impact, with reactors lasting beyond 70 years and powering future generations.
- The industry's success depends on continued policy support, investment, and international collaboration.
- The overarching vision is to make nuclear energy a cornerstone of America's strength, security, and sustainability for centuries to come.

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