

Future Prospects of the Global Nuclear Partnership



Global Nuclear Energy Partnership

Jerry Paul

Deputy Administrator
National Nuclear Security Administration
U.S. Department of Energy

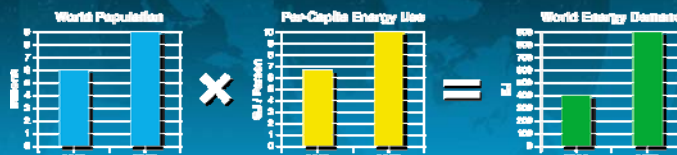
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Challenges: Global Energy Demand

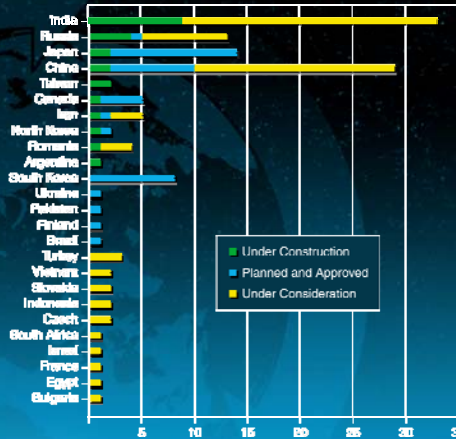
- A reliable energy supply is the cornerstone of sustained economic growth and prosperity
- World energy demand is expected to more than double by 2050
- An expansion of nuclear energy is a key to meeting this demand while reducing air pollution and greenhouse gases



Global Nuclear Energy Partnership

World Nuclear Expansion

- Over 130 reactors are being built, planned, or under consideration world-wide
- We must act now to ensure that these facilities are designed, constructed, and operated to the best standards of:
 - Safety
 - Safeguards
 - Proliferation-resistance
 - Waste disposal



The Initiative

- Expand Nuclear Energy
 - Build reactors at home and abroad for energy, to reduce carbon, and achieve development
- Recycle Nuclear Fuel & Reduce Nuclear Waste
- Enhance Nonproliferation Arrangements



“So tonight I announce the Advanced Energy Initiative... We will invest more in... clean, safe nuclear energy.”

President Bush, January 2006



Framework for a Global Nuclear Energy Partnership

1. Expand nuclear power in an appropriate manner to address growing global energy demand and the need to limit carbon emissions.
2. Restrict the spread of enrichment and reprocessing.
3. Reduce accumulated stocks of separated plutonium.
4. Develop recycling technology for spent fuel that groups plutonium with other actinides and blends them with uranium in preparation for use as new fuel.



Framework for a Global Nuclear Energy Partnership (continued)

5. Develop reactor technology that burns this mixture of plutonium and actinides, which can reduce dramatically the long-term waste management challenges.
6. Develop fuel-leasing arrangements among fuel service suppliers to give developing nations assured sources of supply and provide incentives to forego the development of indigenous enrichment and reprocessing facilities.
7. Ensure recycle facilities and reactors employ advanced safeguards for robust proliferation resistance, physical protection, and use only for civil purposes.



Key GNEP Program Elements

- Expand use of nuclear power
- Minimize nuclear waste
- Demonstrate recycle technology
- Demonstrate Advanced Burner Reactors
- Establish reliable fuel services
- Demonstrate small, exportable reactors
- Enhanced nuclear safeguards technology



"To build a secure energy future for America, we need to expand production of safe, clean nuclear power"

President Bush, 06/2004



Expand Use of Nuclear Power

Build on advances made to encourage more nuclear power in the U.S., including the Nuclear Power 2010 program and the Energy Policy Act of 2005



"The bill I sign today ... offers a new form of federal risk insurance for the first six builders of new nuclear power plants... We will start building nuclear power plants again by the end of this decade"

President Bush, 08/2005



Minimize Nuclear Waste

Significantly reduce the volume of nuclear waste to be disposed of in Yucca Mountain, making disposal less complex and minimizing the need for additional repositories



- Repository needed in all cases
- Aggressive plan to proceed
- One repository can meet U.S. needs this century with GNEP



Demonstrate Advanced Recycling

Demonstrate and deploy new technologies to recycle nuclear fuel that do not result in separated plutonium

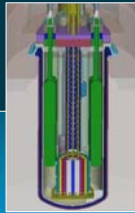


- Demonstrate with advanced fuel cycle states, not for export
- Encourage transition to a fuel cycle that does not separate plutonium
- Provides fuel for advanced reactors
- Rest of recycled products become easier to deal with for waste management



Demonstrate Burner Reactors

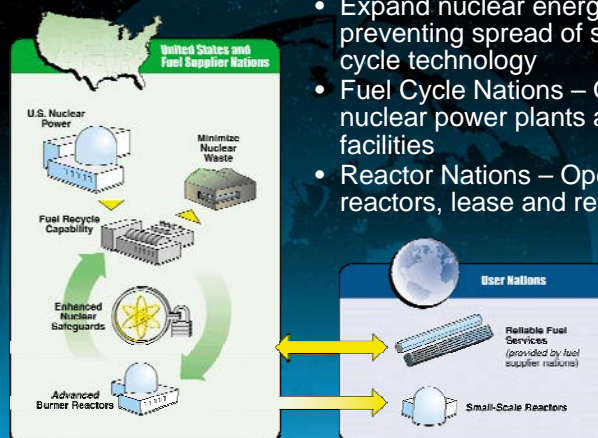
Demonstrate and deploy Advanced Burner Reactors that use the latest technology to produce energy from recycled nuclear fuel



- Fast spectrum reactor can burn plutonium & other fissile isotopes
- Recovers energy from spent fuel
- Repeated cycles transforms waste
- Build on operating experience
- Define new safeguards standards
- Prove for commercial scale

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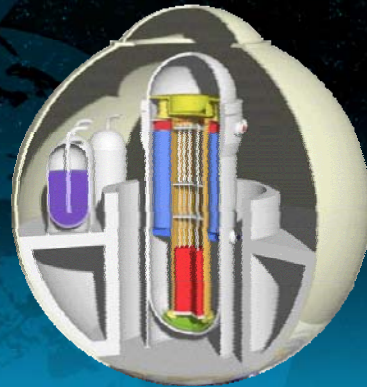
Reliable Fuel Service Model



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Small-Scale Reactors

Design and deploy small-scale reactors that are cost-effective, secure, and well-suited to conditions in developing nations



Enhanced Nuclear Safeguards

Design advanced safeguards directly into advanced nuclear energy facilities and reactors and enhance IAEA capabilities

"The extent of the role of nuclear power... will depend on the success of the nuclear community in developing innovative technology and new approaches to address concerns."

– Dr. Mohamed El Baradei



GNEP is Inclusive of All Nations

A bargain for supplier- and user-states alike

- The major nuclear suppliers must encourage clean nuclear energy development around the world & improve the environment.
- In exchange for giving up the potential to make weapons, user-states will have nuclear energy systems and avoid the need to invest in enrichment facilities or spent fuel repositories.



Conclusion

"...allow all peoples of all nations to see that, in this enlightened age, the great powers of the earth, both of the East and of the West, are interested in human aspirations first, rather than in building up the armaments of war."

President Dwight D. Eisenhower

"Atoms for Peace" speech before the United Nations, 1953

