



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

The Nuclear Energy Regulatory Framework:

U.S. Nuclear Regulatory Commission Perspective

**Karen D. Cyr, General Counsel
U.S. Nuclear Regulatory Commission
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Overview of the U.S. Nuclear Regulatory Commission



NRC's Mission

License and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.



NRC Organization

- Five member Commission led by the Chairman
- Commissioners serve 5-year terms
- Approximately 4000 employees and an annual budget approaching \$1billion (FY08)—90% paid by user fees
- Headquarters in Rockville, Maryland
- Four regional offices:
 - Philadelphia, Pennsylvania
 - Atlanta, Georgia
 - Chicago, Illinois
 - Arlington, Texas





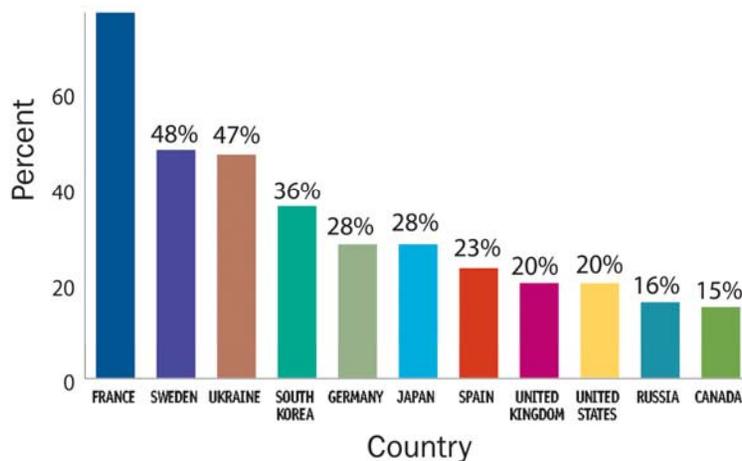
NRC Regulates:

- 104 commercial nuclear power plants that provide about 20 percent of the nation's electricity
- Over 45 fuel facilities involved in the extraction, processing, and fabrication of uranium into reactor fuel
- Approximately 5,000 large and small users of nuclear material for industrial, medical, or academic purposes
- Low-level and high-level waste facilities, interim storage of spent nuclear fuel, containers used in the transportation of radioactive fuel, and decommissioning of nuclear facilities

Sources of Electricity Generation

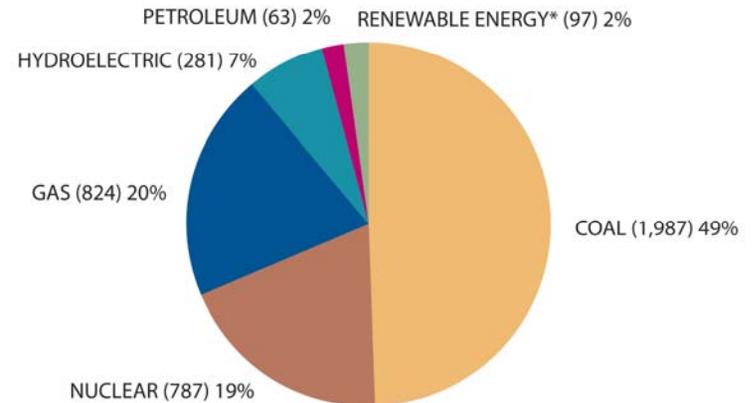
Total Domestic Net Nuclear Electricity Generation, 2004

Percent of Total Domestic Electricity Generation From Nuclear



U.S. Electric Net Generation by Energy Source, 2006

TOTAL GENERATION: 4,053 billion kilowatthours



*Renewable energy includes geothermal, wood and nonwood waste, wind, and solar energy.

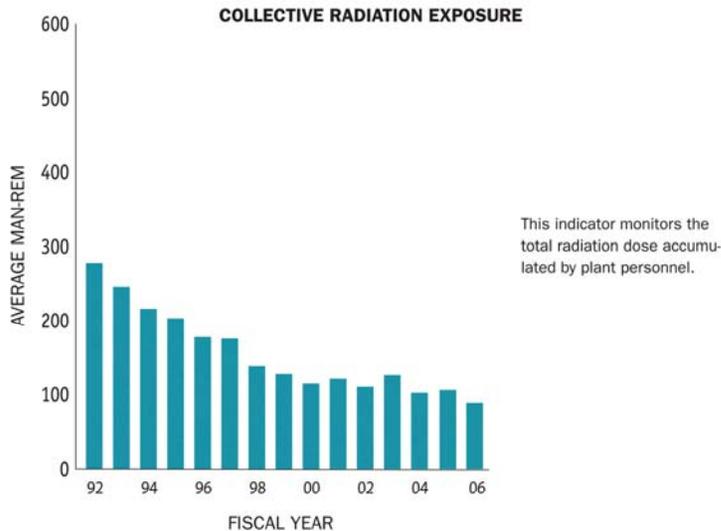
Renewable conventional hydroelectric power is included in hydroelectric power.

Note: Net summer capability. Percentages are rounded to the nearest whole number. Numbers rounded to the nearest thousand.

Source: DOE/EIA Monthly Energy Review, March 2007, Table 7.2a, <http://www.eia.doe.gov>

Reactor Operation: Trends in Safety

Industry Performance Indicators: Annual Industry Averages, FYs 1992–2006



Note: Data represents annual industry averages, with plants in extended shut-down excluded. Data are rounded for display purposes. These data may differ slightly from previously published data as a result of refinements in data quality.

Source: Licensee data as compiled by the U.S. Nuclear Regulatory Commission.

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The Legal and Regulatory Framework for Nuclear Energy Development and Regulation



What is “Nuclear Law”?

“The body of special legal norms created to regulate the conduct of legal or natural persons engaged in activities related to fissionable materials, ionizing radiation and exposure to natural sources of radiation” – *Handbook on Nuclear Law*, ch.1.2 (IAEA 2003)

- Integral to general national law, but recognizes the special nature of the technology.
- Rooted in risk-benefit approach to use of technology.
- Governs the conduct of commercial, academic, scientific, and governmental institutions as well as individuals.
- Radioactivity is the characteristic justifying a special legal regime.

Basic Principles of Nuclear Law

- The safety principle
- The security principle
- The responsibility principle
- The permission principle
- The continuous control principle
- The compensation principle
- The sustainable development principle
- The compliance principle
- The independence principle
- The transparency principle
- The international co-operation principle



Source: *Handbook on Nuclear Law*, ch. 1.4 (IAEA 2003)

Legal Framework

National Constitution

National Legislation

International Treaties & Obligations

Development &
Infrastructure

- National Policies
- National Support Structure
 - Integration with other national programs
- Emergency Response
 - Liability Regime
- Decommissioning & Disposal

Regulatory Regime

- Statutory Authority
- Implementing Regulations
 - License
- Industry Codes
- Guidance Documents
- Operator's Procedures and Plans

Key Questions to Ask about the Legal Framework

- **Are the institutional authorities of government clear and appropriate?**
- **For development are financial, liability, and related issues addressed?**
- **Does the regulatory framework comprehensively address the primary objectives of safety and security?**
- **Is the responsibility of the user or operator for safety and security clear?**

Institutional Responsibilities of Government

- The *Permission Principle*: identify those activities that require authorization (“licensing”).
- The *Independence Principle*: the regulator must have the authority, capability, and resources to make safety decisions
- The *Continuous Control Principle*: the regulator must have free and continued ability to monitor activities.

Institutional Responsibilities of Government (cont.)

- **The *Transparency Principle*:** relevant information on use of nuclear energy, including incidents, is made available to the public.
- **The *Compliance Principle*:** international obligations are reflected in national law and states act so as not to do harm to others
- **The *International Co-operation Principle*:** maintain relationships with counterparts in other States and international organizations.
- **The *Compensation Principle*:** States must adopt means to provide adequate compensation for a nuclear accident.

The Regulator



Status

- Independent of operator or promotional agencies
- Has ability to carry out its functions
- Ability to report its findings
- Technical competence to carry out its mission
- Financial resources are provided
- Decisions may be reviewed, but not subject to arbitrary or extraneous considerations

Powers & Duties

- Standards setting
- Licensing or Permitting
- Inspection and monitoring
- Enforcement
- Coordination with other bodies
- Dissemination of public information

See Convention on Nuclear Safety (CNS), Articles 7 & 8

The Responsibility of the Operator



- **The *Responsibility Principle*:** the operator of the facility or the person licensed to use material bears the primary burden of ensuring that its operations and activities meet safety, security, and environmental protection requirements. (CNS, Art 9)
- **The *Permission Principle*:** the operator or licensee may only do that which is permitted.
- **The *Compensation Principle*:** the operator or licensee may bear responsibility in the compensation regime for nuclear accidents.

Other considerations

- Incorporating international guidance documents or foreign law provisions into national legislation
- Stakeholder involvement
- Safety Culture



Thank you!

