



# **The NRC: Who We Are and What We Do and Overview of Recent Events in Japan and at North Anna**

**Michael Markley, Branch Chief**  
E-Mail: [Michael.Markley@nrc.gov](mailto:Michael.Markley@nrc.gov)  
**Office of Nuclear Reactor Regulation**

**Presented at Cascades Library  
Loudoun County, Virginia  
September 19, 2011**

# Who We Are

The Energy Reorganization Act of 1974 established the NRC to independently regulate commercial uses of nuclear material, including nuclear power; other duties of the former Atomic Energy Commission were assigned to the DOE.

The NRC is headed by five Commissioners, all nominated by the President and confirmed by the Senate for staggered five year terms. No more than three can be from the same political party.



# Who We Are



The NRC employs nearly 4,000 people among its suburban Maryland headquarters and four regional offices in Pennsylvania, Georgia, Illinois and Texas. NRC inspectors are also assigned to 65 nuclear power plant sites and three fuel facilities.



# Our Mission

To 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.

# Some Nuclear Facts

- 104 nuclear power plants supply about 20 percent of the electricity in the U.S.
- Nuclear materials are used in medicine for cancer treatment and diagnosis.
- Nuclear materials are widely used in industry, such as in density gauges, flow measurement devices, radiography devices and irradiators.

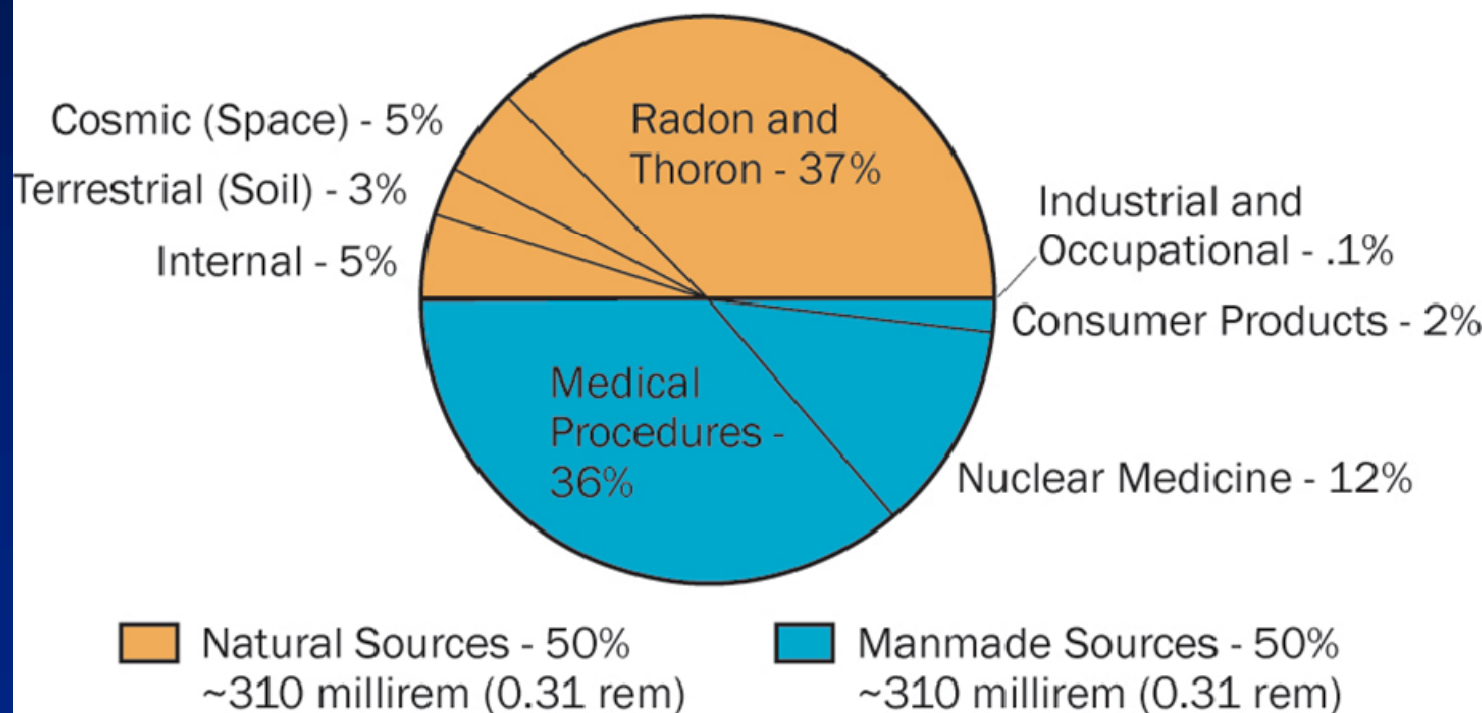
# Some Radiation Facts

Radiation occurs naturally in the soil, air and water. The average person in the U.S. is exposed to about 620 millirem of radiation a year. Half of that exposure comes from natural sources (also called background radiation). The other half largely comes from nuclear medical exams and treatments. Small amounts of radioactive material are also used in common items such as smoke detectors, exit signs and some watches.



# Some Radiation Facts

**Sources of Radiation Exposure in the United States**



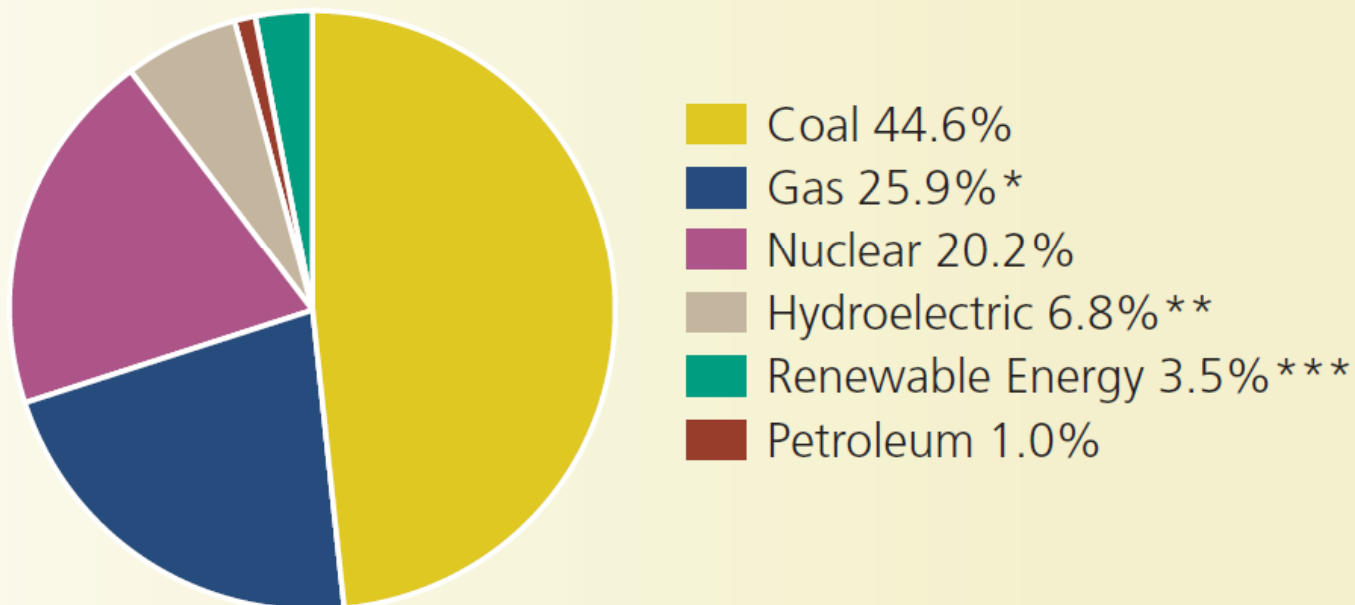
Source: NCRP Report No.160(2009)

Full report is available on the NCRP Web site at [www.NCRPpublications.org](http://www.NCRPpublications.org).



## U. S. Electric Generation by Energy Source

Total Net Generation: 3,953 billion kilowatthours



\* Gas includes natural gas, blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuel.

\*\* Hydroelectric includes conventional hydroelectric and hydroelectric pumped storage.

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

Note: Percentages are rounded to the nearest whole number. Totals may not equal sum of components because of independent rounding.

Source: DOE/EIA, "Monthly Energy Review," data from April 2009, [www.eia.doe.gov/mer/](http://www.eia.doe.gov/mer/)



# The NRC Regulates:

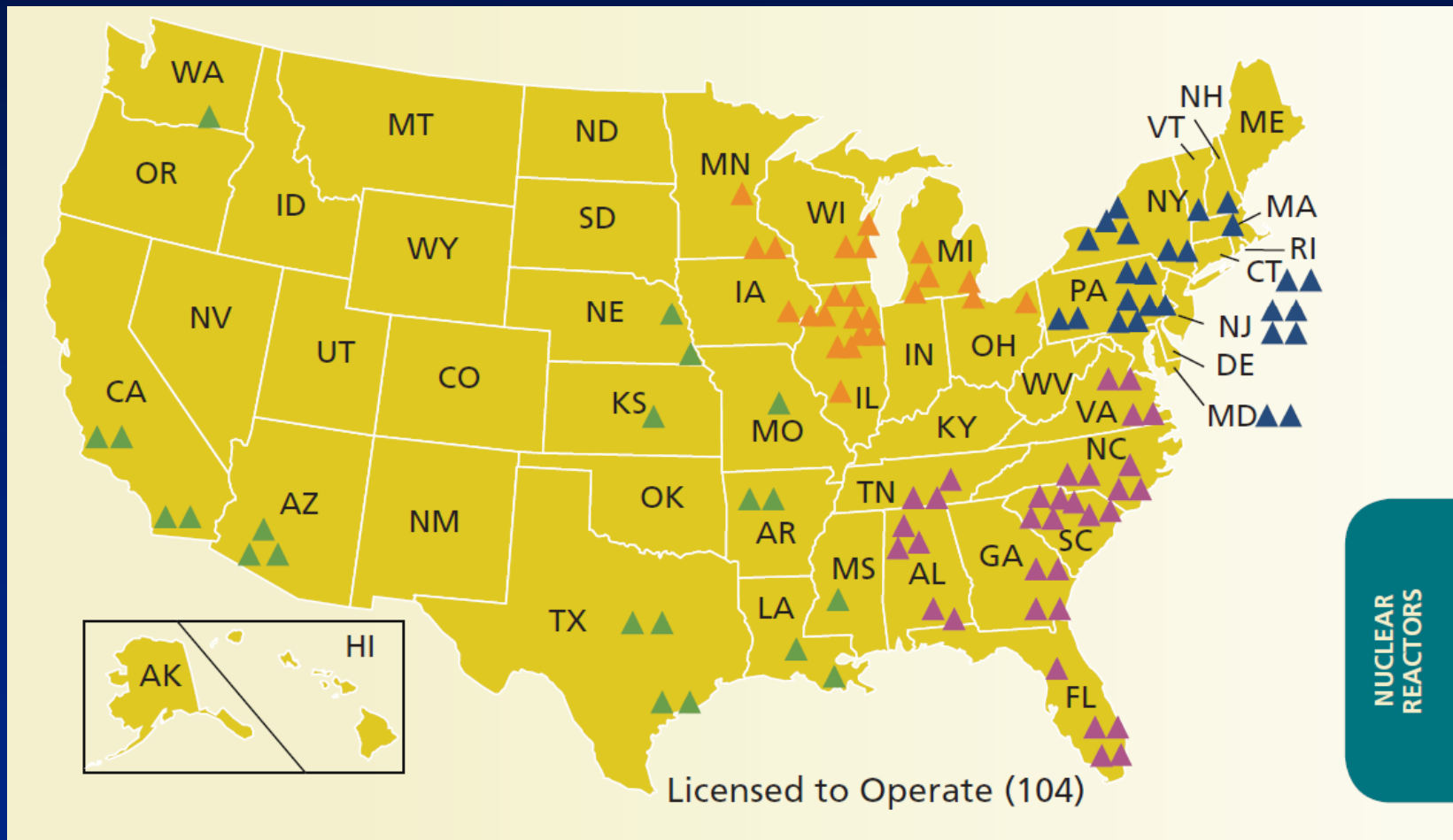
Nuclear reactors – commercial power reactors, research and test reactors, new reactor designs;

Nuclear materials – radioactive materials for medical, industrial and academic use;

Nuclear waste – transportation, storage and disposal of nuclear material and waste, decommissioning of nuclear facilities; and

Nuclear security – physical security of nuclear facilities and materials from sabotage or attacks.

## Operating Commercial Nuclear Power Reactors



# What We Don't Do:

- Regulate nuclear weapons, military reactors or space vehicle reactors. (These are regulated by other federal agencies.)
- Lobby for nuclear power. (The nation's nuclear agenda is set by the President and the Congress.)
- Own or operate nuclear power plants.
- Regulate naturally occurring radon, X-rays and material produced in particle accelerators. (These are regulated by states or other federal agencies.)

# Open To The Public

The NRC places a high priority on keeping the public and stakeholders informed of its activities. At [www.nrc.gov](http://www.nrc.gov), you can:

- [Find](#) public meeting dates and transcripts;
- [Read](#) NRC testimony, speeches, press releases and policy decisions; and
- [Access](#) the agency's Electronic Reading Room to find NRC publications and documents.



# Earthquakes and Tsunamis in Japan



Site of Fukushima Reactors



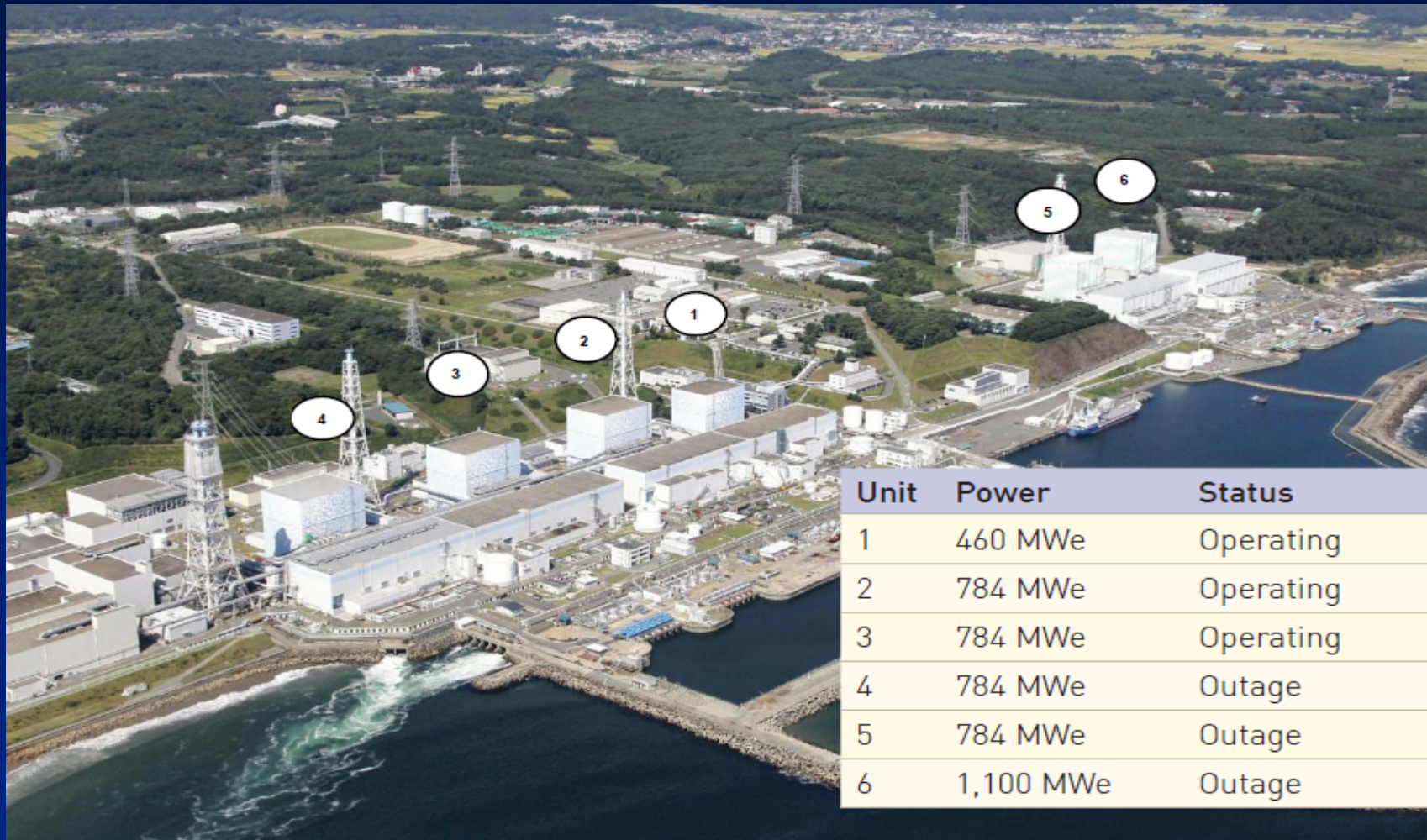


Figure 2: Fukushima Dai-ichi Nuclear Power Plant (status before earthquake)

# Locations of Social Impacts





# Hydrogen Explosions



# NRC Incident Response



- Incident Response Center (IRC) activated in Monitoring Mode
- Japan site team
- Near Term Task Force
- Commission issued Staff Requirements Memorandum (SRM) issued directing NRC staff actions

## Near-Term Task Force (NTTF) Report

- Similar sequence of events in the U.S. is unlikely
- Mitigation measures could reduce the likelihood of core damage and radiological releases
- No imminent risk from continued operation and continued licensing activities
- NTTF Report available on <http://pbadupws.nrc.gov/docs/ML1118/ML111861807.pdf> (Under Spotlight, Japan Nuclear Accident-NRC Actions)



## Recent Earthquake at North Anna

- 8/23/2011: Alert declared due to loss of offsite power
- 8/25/2011: Unusual Event declared due to earthquake aftershock
- 8/29/2011: NRC dispatched Augmented Inspection Team
- 9/8/2011: Meeting on earthquake near North Anna





## Summary

- NRC ensures public health and safety and protection of the environment through its licensing, oversight, and incident response programs. U.S. nuclear power plants continue to operate safely
- NRC resident inspectors are stationed at every reactor site and their families also live in communities near the plants.
- NRC continues to follow events in Japan and is planning a longer term review of Fukushima accident. NRC's reviews include dialogue with all stakeholders, including public interest groups, industry, Federal, State, and local agencies, and members of the public.
- NRC staff is continuing its review of the North Anna earthquake and plant-specific external hazards at all U.S. reactors.
- DHS National Response Framework provides for a national strategy for prevention and mitigation of incidents of national significance.

## Acronym List

- AIT: Augmented Inspection Team
- BWR: Boiling Water Reactor
- EP: Emergency Preparedness
- DHS: Department of Homeland Security
- IRC: Incident Response Center
- NRC: Nuclear Regulatory Commission
- NTTF: Near-Term Task Force
- PWR: Pressurized Water Reactor
- SRM: Staff Requirements Memorandum



# U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

## Questions?