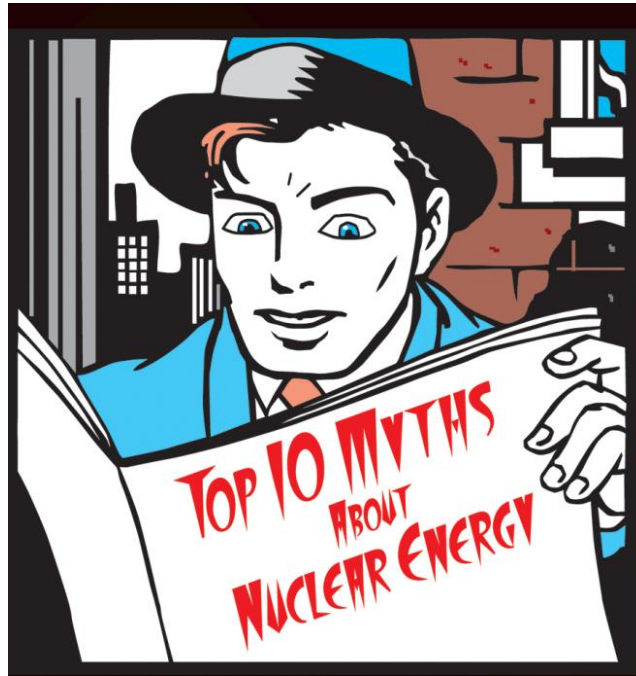


Top 10 Myths about Nuclear Energy



Myth # 1:

Americans get most of their yearly radiation dose from nuclear power plants.



Truth:

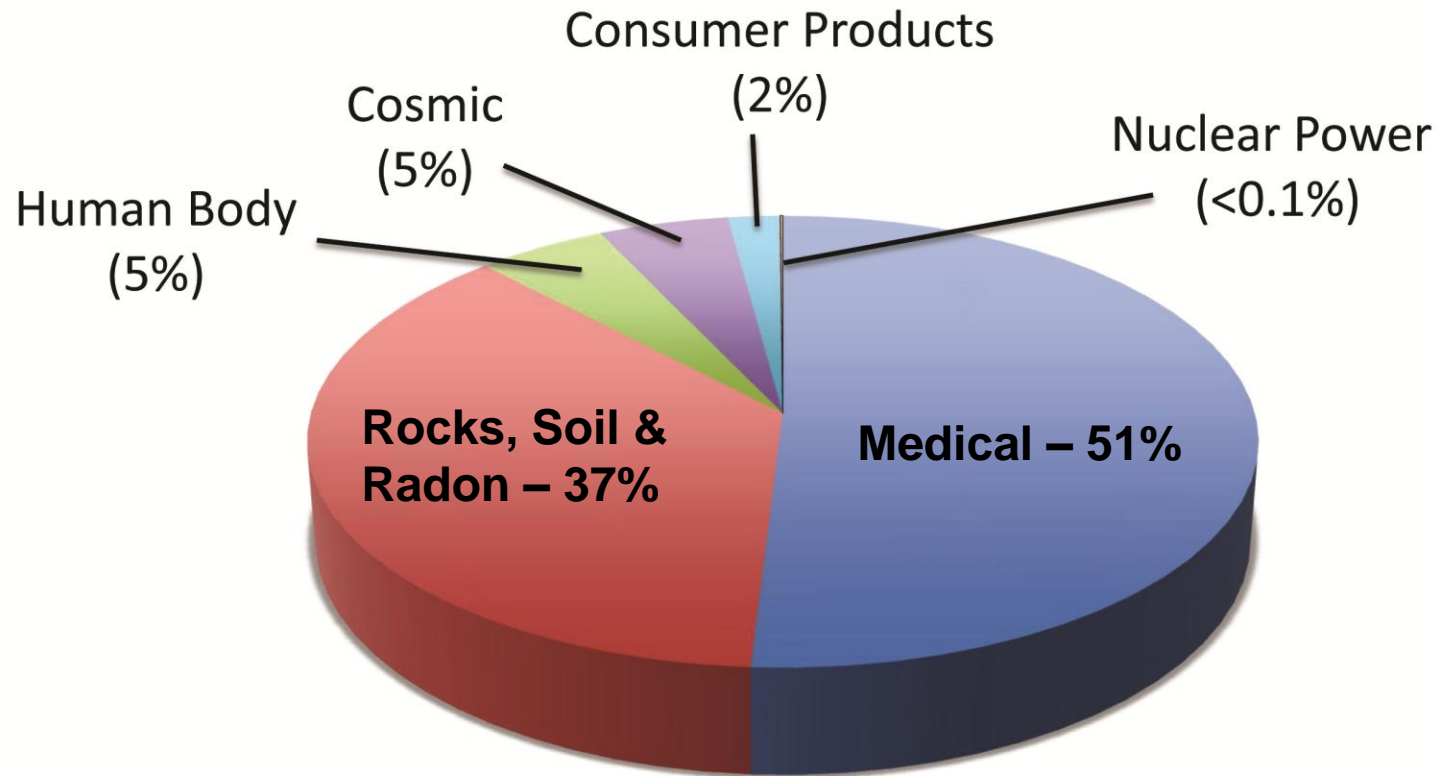
- We are surrounded by naturally occurring radiation.
- Less than 1 / 1000th of the average American's yearly radiation dose comes from nuclear power.
- This yearly radiation dose is 100 times less than we get from coal,^[1] 200 times less than a cross-country flight, and about the same as eating 1 banana per year.^[2]



1. National Council on Rad Protection and Measurements No. 92 and 95
2. CDR Handbook on Radiation Measurement and Protection



Sources of Radiation



The average American receives a radiation dose of 620 millirem per year.



Myth # 2:

A nuclear reactor can explode like a nuclear bomb.



Truth:

- It is physically impossible for a reactor to explode like a nuclear weapon.
- Nuclear weapons contain very special materials in very particular configurations, none of which are present in a nuclear reactor.



Myth #3:

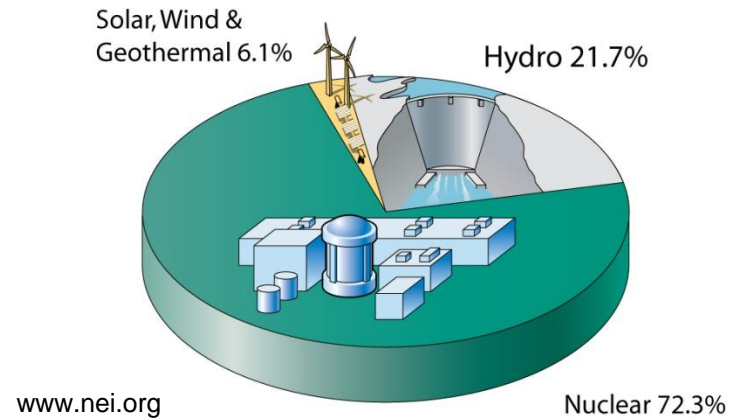
Nuclear energy is bad for the environment.



Truth:

- Nuclear reactors emit no greenhouse gasses during operation.
- Over their full lifetimes, nuclear reactors result in comparable emissions to renewable forms of energy such as wind and solar.^[1]

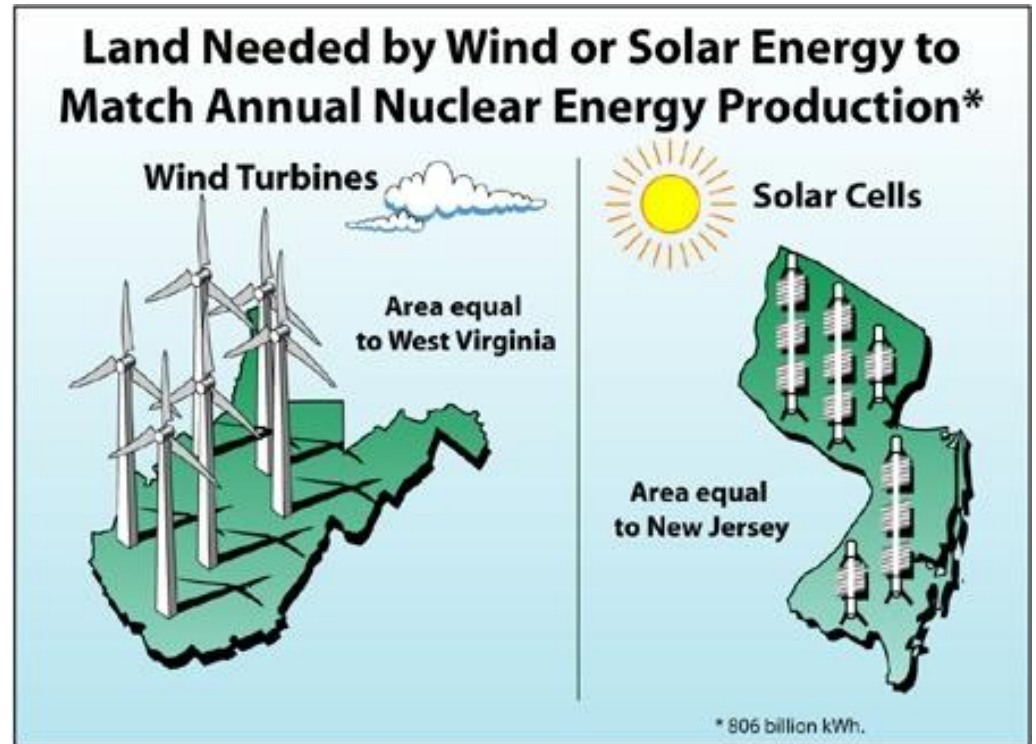
Sources of Emission-Free Electricity 2008



1. P.J. Meier, "Life-Cycle Assessment of Electricity Generation Systems and Applications for Climate Change Policy Analysis," 2002

Other environmental advantages:

- Nuclear energy requires less land use than most other forms of green energy.
- Nuclear energy does not deplete useful resources
 - There is no other commercial use for Uranium



Graphic: Nuclear Energy Institute

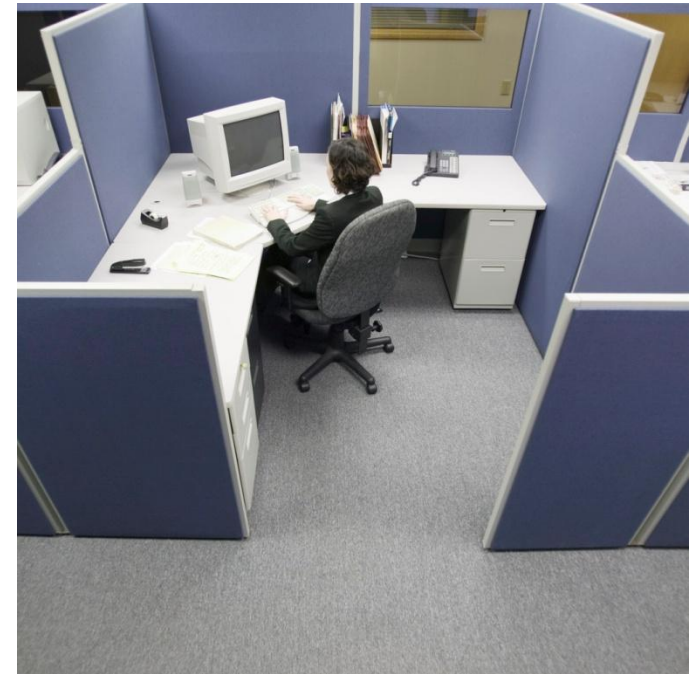
Myth # 4:

Nuclear energy is not safe.



Truth:

- Nuclear energy is as safe – or safer – than any other form of energy available.
- No member of the public has ever been injured or killed in the entire 50-year history of commercial nuclear power in the U.S.^[1]
- In fact, recent studies have shown that it is safer to work in a nuclear power plant than an office.^[2]



1. Senator Lamar Alexander, as verified by PolitiFact. (2009 Pulitzer Prize Winner)
2. Nuclear Energy Institute (www.nei.org)



Myth # 5:

There is no solution for huge amounts of nuclear waste being generated.



Truth:

- If all the used fuel produced by U.S. nuclear power plants in nearly 50 years were stacked end to end, it would cover a football field to a depth of less than 10 yards.^[1]
- 96% of this “waste” can be recycled.^[2]
- Used fuel is currently being safely stored.
- The U.S. National Academy of Sciences and the equivalent scientific advisory panels in every major country support geological disposal of such wastes as the preferred safe method for their ultimate disposal.^[3]

1. Nuclear Energy Institute: <http://nei.org/keyissues/nuclearwastedisposal/storageofusednuclearfuel/>
2. K.S. Krane, *Introductory Nuclear Physics*, John Wiley and Sons, 1988
3. *Progress Towards Geologic Disposal of Radioactive Waste: Where do We Stand?* Nuclear Energy Agency, OECD report, 1999 (<http://www.nea.fr/rwm/reports/1999/progress.pdf>)



Connecticut Yankee

(decommissioned)

- This is all of the fuel used during the 30 years that this reactor operated (now being stored in shielded and air cooled casks).
- The waste volume could be reduced even more by reprocessing.



Myth # 6:

Most Americans don't support nuclear power.



Truth:

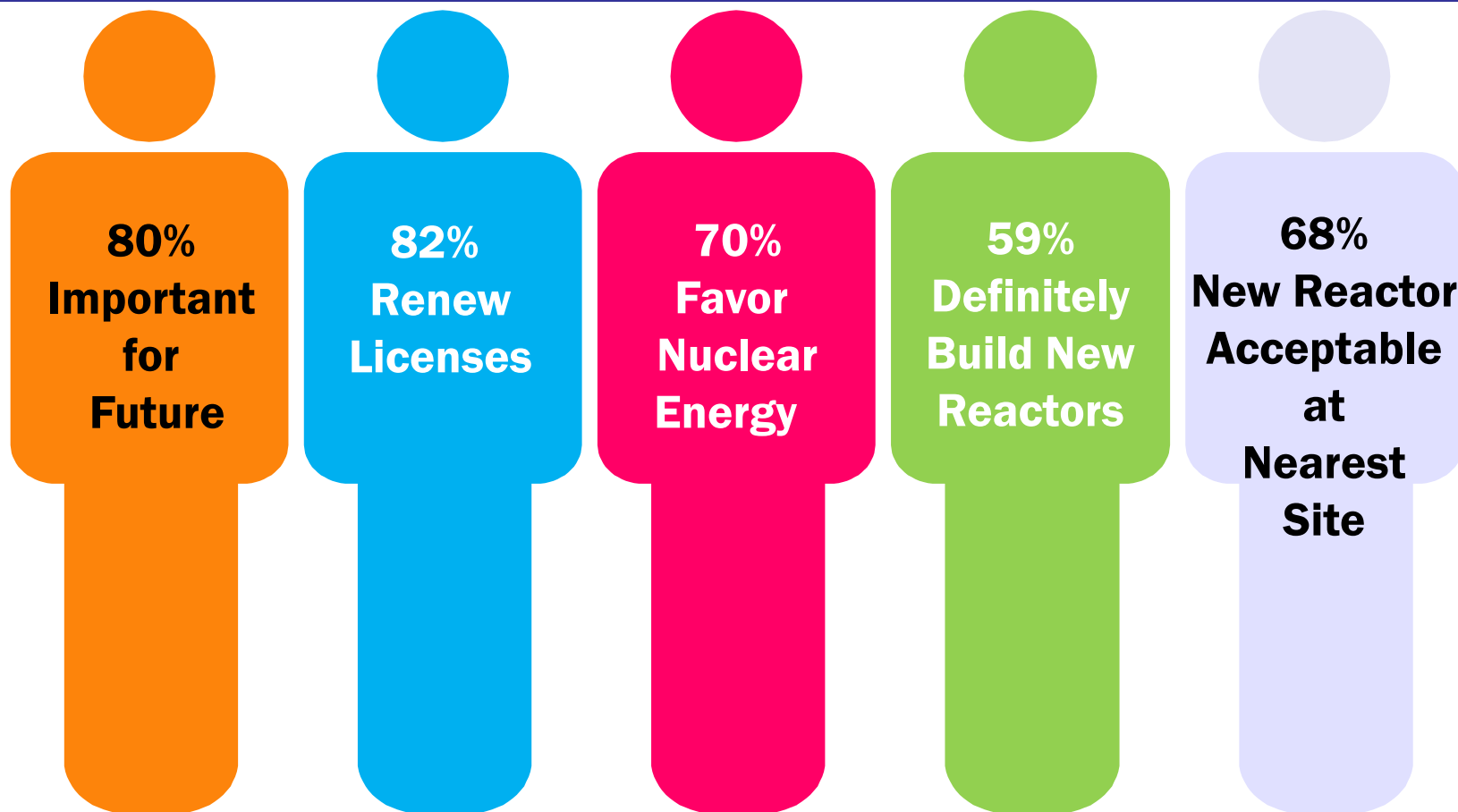
- In surveys conducted in 2009, it was found that 70% of Americans favor nuclear power.^[1]
- 80% of Americans see nuclear energy as an important source of electricity for the future, and 68% would accept a new reactor at the nearest nuclear power plant site.^[2]

1. Perspectives on Public Opinion, Bisconti Research, June 2009

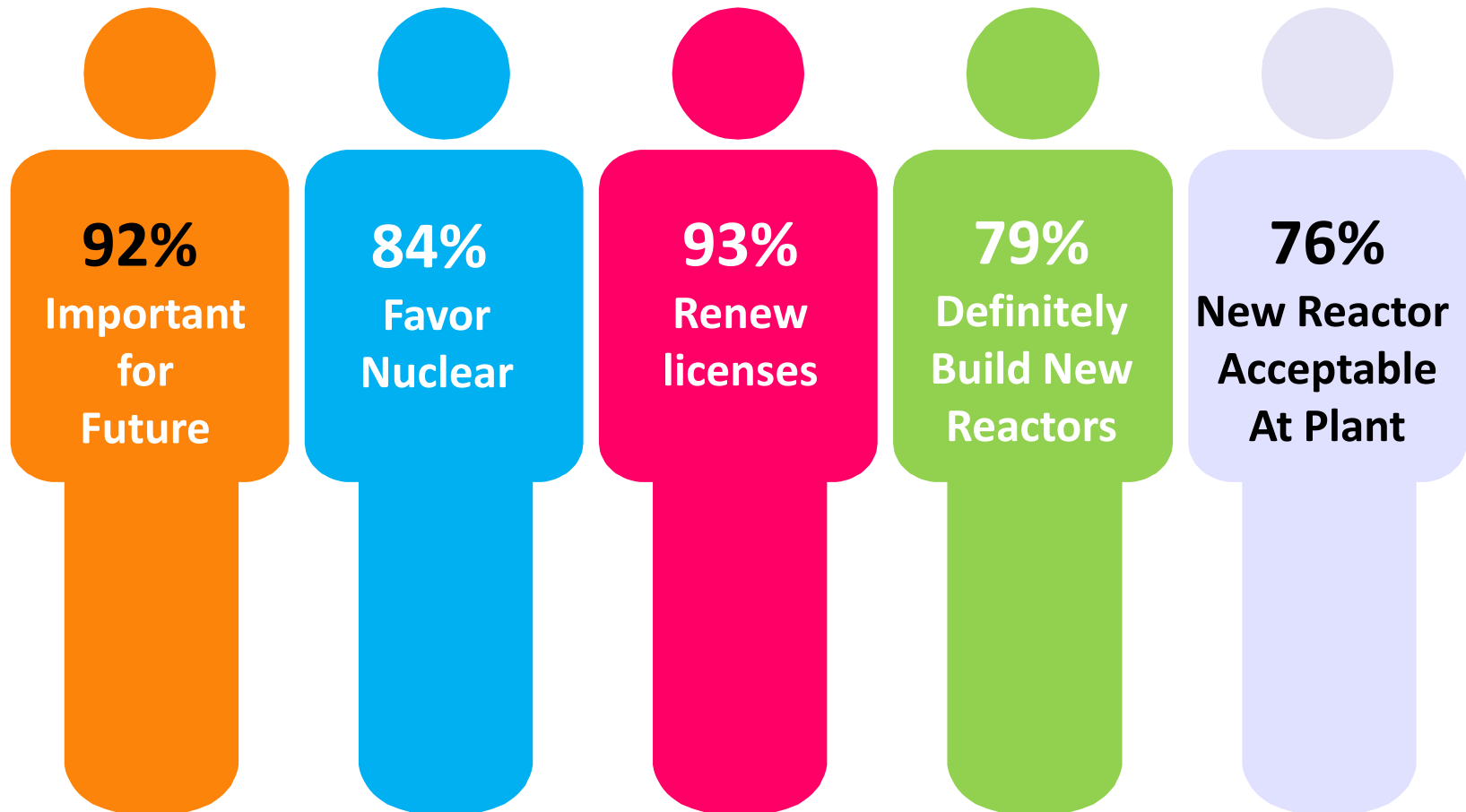
2. Bisconti Research Inc. , April 2009



Public Support for Nuclear Energy



Most U.S. Nuclear Power Plant Neighbors Support Nuclear Energy



Bisconti Research, Inc., July 2009 poll of 1,152 U.S. nuclear power plant neighbors



Myth # 7:

An American “Chernobyl” would kill thousands of people.



Truth:

A Chernobyl-type accident cannot happen in the United States

- This type of reactor was not built in the United States.
- Western reactors have containment structures to prevent release of radioactivity to the environment. This worked as designed for Three Mile Island.
- Western reactors are stable under all possible reactor conditions, so a runaway reaction like the one at Chernobyl is impossible.
- Western commercial reactors do not contain massive amounts of material such as graphite which can burn.



Myth # 8:

Nuclear waste cannot be safely transported.



Truth:

- Radioactive materials have been shipped in this country for more than 60 years.
- 3 million packages of radioactive materials are shipped each year in the U.S.
- As when transporting other commodities, vehicles carrying radioactive materials have been involved in transportation accidents. However, NO deaths or serious injuries have resulted from exposure to the radioactive contents of these shipments.^[1]

1. U.S. Department of Energy, *Transporting Radioactive Materials: Answers to Your Questions*, June 1999



Sandia Crash Tests

Casks for transporting nuclear waste are tested to survive various types of crashes and exposure to fire. All tests show that they survive intact without release of radioactivity.



Impact with a locomotive at 80mph

Myth # 9:

**Used nuclear fuel is deadly for
10,000 years.**



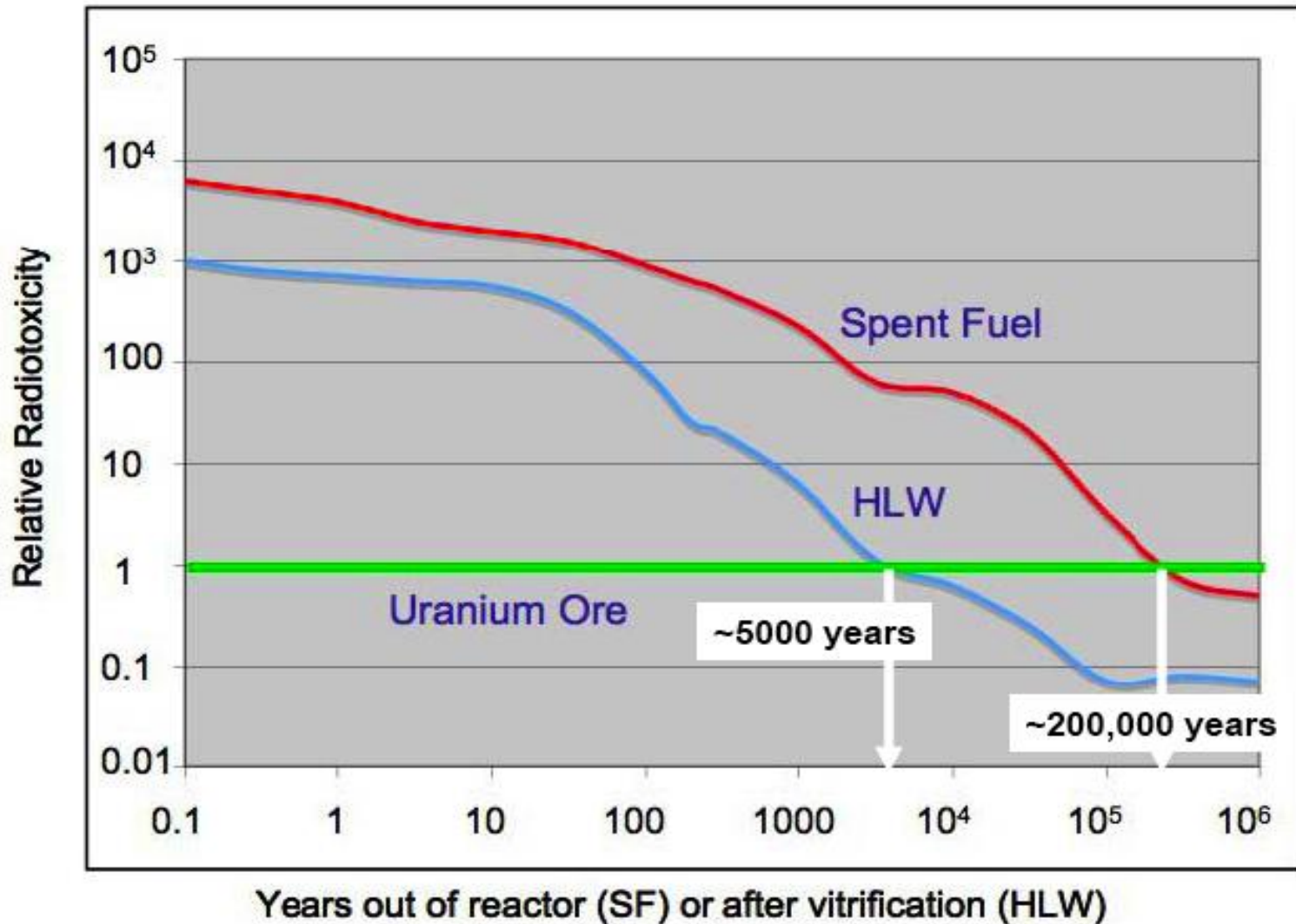
Truth:

- Used nuclear fuel can be recycled to make new fuel and other useful products.^[1]
- Most of the waste from this process will require a storage time of less than 300 years.

1. K.S. Krane, *Introductory Nuclear Physics*, John Wiley and Sons, 1988



Radioactivity Vs. Time



Myth # 10:

Nuclear energy can't reduce our dependence on foreign oil.



Truth:

Nuclear-generated
electricity powers

- electric trains
- subway cars
- automobiles



Truth:

- **Near-term**

- nuclear power can provide electricity for expanded mass-transit and plug-in hybrid cars.
- Small modular reactors can provide power to islands (e.g. HI, PR, Nantucket and Guam) currently burning oil to generate electricity.^[1]

- **Longer-term**

- Nuclear power can reduce dependence on foreign oil by producing hydrogen for fuel cells and synthetic liquid fuels.



Photo: Hydrogencarsnow.com

1. U.S. Energy Information Administration



Questions

