



# US NUCLEAR ENERGY FOUNDATION

## “Nuclear Advocacy Through Grassroots Education”

A Non-Profit 501 (C)(3) Nevada Corporation

### Energy related disasters and loss of life expectancy

This data and the comments in Dr. Cohen’s book indicate that the nuclear industry, media, and politics fall short in defending the safety and renewable attributes of nuclear technology in order to remain politically correct at any cost. Shame on integrity!

Few sources provide documented statistical information on the cost of lives for energy production which include nuclear energy into the total calculations. This is a very revealing document which does include all. The first section is compiled by Piero Scaruffi, mathematics (summa cum laude) in 1982 from the University of Turin, where he did work in General Theory of Relativity. The second section is from Dr. Bernard Cohen’s book, “The Nuclear Energy Option”, (1990) Loss of Life Expectancy Due to Various Risks”.

### World Disasters related to the Energy industry: Compiler: Piero Scaruffi

1. **Hydro** (dams)
  - o Johnstown, **USA** (1889): **2,200 dead**
  - o Santa Paula, **USA** (1928): **470 dead**
  - o Malpasset Dam, Frejus, **France** (1959): **412 dead**
  - o Vajont, **Italy** (1963): **1909 dead**
  - o Shimantan, **China** (1975): **85,000 dead World Total 89,991**
2. **Coal** (mines)
  - o **U.S.** 1946 to 2015, 70 years (*start of the nuclear age*): **14,600 dead**
  - o **China, 1950 through to today: between 4,000 and 6,000 miners die every year** in coal mine accidents in **China**. 1950 to 2014 = 64 years, assuming the “low estimate” of 3,500 x 64 years totals **224,000 dead**.
  - o The **indirect deaths** caused by coal air pollution may be in the millions.
3. **Chemical**. Bhopal, India (1984): **14,000 dead**.
4. The indirect deaths caused by chemical pollution around the world may be in the millions
5. **Nuclear. Chernobyl**, (1986): **30 dead in 1986, 19 dead in following years from radiation, 15 children** who died of thyroid cancer by 2002, **several killed building the sarcophagus in later years** (the Ukrainian government claims the death of **93,000 people, but it never provided any evidence**, and Russia accuses it of using those numbers to claim compensation - antinuclear activists use the numbers of the Ukrainian government to claim nuclear power is dangerous - Greenpeace even counts all deaths from all diseases in that region till the end of time as caused by the explosion, thus inflating the number to 200,000 - a **United Nations report of 2006 estimated 9,000 direct and indirect victims of the explosion over 20 years** but using a logic that would yield colossal numbers of deaths if applied to a coal mine and probably millions of deaths if applied to the pollution caused by cars). There has not been any other major nuclear-power disaster. The second worst is Mihama, Japan (2004) when non-radioactive steam leaked from a nuclear power plant killing four workers, followed by Tokaimura, Japan (1999), when radioactive gas killed two workers. Neither the Japanese government nor environmental organizations have ever found evidence of additional indirect deaths. **These numbers are very small compared with the numbers of people killed in hydro, coal and chemical accidents.**

**Compiler: Piero Scaruffi** for a number of years he was the head of the **Artificial Intelligence** Center at Olivetti, based in Cupertino, California. He has been a visiting scholar at Harvard Univ. and Stanford Univ. (conducting research on Artificial Intelligence and Cognitive Science), has lectured in three continents on "[The Nature of Mind](#)" and "[History of Knowledge](#)" (most recently at U.C. Berkeley), and has published a number of **books** as well as hundreds of articles for magazines both in Italy and the U.S. "[Thinking About Thought](#)" (2003) and "[The Nature of Consciousness](#)" (2006) are his most recent books on these subjects. As a software consultant, he pioneered Internet applications, Artificial Intelligence and Object-Orientated design.

**Dr. Bernard Cohen's book The Nuclear Energy Option** goes into great detail comparing **health risk analysis** of accidents, medical illness, socioeconomic environments, etc. to the radiation environment of nuclear power plants. This table is in Chapter-8 Pg-128 in his book. The table represents **Loss of Life Expectancy in DAYS** based on the research gathered. Table items in **BOLD** are directly related to ENERGY development. A couple paragraphs follow the table relative to these comparisons are to further explain the comparisons in Dr. Cohen's book.

### LOSS OF LIFE EXPECTANCY (LLE) DUE TO VARIOUS RISKS Dr. Cohen

Activity or risk*	LLE (days)	Suicide*	
Living in poverty	3500	Homicide*	95
Being male (vs. female)	2800	Air pollution*	80
Cigarettes (male)	2300	Occupational accidents	74
Heart disease*	2100	AIDS*	70
Being unmarried	2000	Small cars (vs. midsize)	60
Being black (vs. white)	2000	Married to smoker	50
Socioeconomic status low	1500	Drowning*	40
<b>Working as a coal miner</b>	<b>1100</b>	Speed limit: 65 vs. 55 miles per hour*	40
Cancer*	980	Falls*	39
30-lb overweight	900	Poison + suffocation + asphyxiation*	37
Grade school dropout	800	Radon in homes*	35
Sub-optimal medical care*	550	Fire, burns*	27
Stroke*	520	Coffee: 2 cups/day	26
15-lb overweight	450	Radiation worker, age 18-65	25
All accidents*	400	Firearms*	11
Vietnam army service	400	Birth control pills	5
Living in Southeast (SC,MS,GA,LA,AL)	350	<b>All electricity nuclear (UCS)*</b>	<b>1.5</b>
<b>Mining construction (accidents only)</b>	<b>320</b>	Peanut butter (1 Tbsp./day)	1.1
Alcohol*	230	Hurricanes, tornadoes*	1
Motor vehicle accidents	180	Airline crashes*	1
Pneumonia, influenza*	130	Dam failures*	1
Drug abuse*	100	<b>Living near nuclear plant</b>	<b>0.4</b>
		<b>All electricity nuclear (NRC)*</b>	<b>0.04</b>

\*Asterisks indicate averages over total U.S. population; others refer to those exposed.

\*(UCS) Union of Concerned Scientists.

If we compare these risks with some of those listed in Table 1, we see that having a **full nuclear power program in this country** would present the **same added health risk** (UCS estimates in brackets) as a **regular smoker indulging in one extra cigarette every 15 years** [every 3 months], or as an overweight person increasing her weight by 0.012 [0.8] ounces, or as in raising the U.S. highway speed limit from 55 miles per hour to 55.006 [55.4] miles per hour, and it is 2,000 [30] times less of a danger than switching from midsize to small cars. Note that these figures are not controversial, because I have given not only the estimates of Establishment scientists but also those of the leading nuclear power opposition group in this country, UCS, (*Union of Concerned Scientists*).

I have been presenting these risk comparisons at every opportunity for several years, but I get the impression that they are interpreted as the opinion of a nuclear advocate. **Media reports have said "Dr. Cohen claims . . ."** But **there is no personal opinion involved here**. Deriving these comparisons is simple and **straightforward mathematics which no one can question**. I have **published them in scientific journals, and no scientist has objected to them**. I have quoted them in debates with three different UCS leaders and they have never denied them. If anyone has any reason to believe that these comparisons are not valid, they have been awfully quiet about it.

It seems to me that these comparisons are the all-important bottom line in the nuclear debates. **Nuclear power was rejected** because it was **viewed as being too risky**, but the best way for a person to understand a risk is to compare it with other risks with which that person is familiar. These comparisons are therefore the **best way for members of the public to understand the risks of nuclear power**. All of the endless technical facts thrown at them are unimportant and unnecessary if they only understand these few simple risk comparisons. That is all they really need to know about nuclear power. But **somehow they are never told these facts. The media never present them**, and even nuclear advocates hardly ever quote them. Instead, the public is fed a mass of technical and scientific detail that it doesn't understand, which therefore serves to frighten.

When I started my investigations into the safety of nuclear energy in 1971, I had no preconceived notions and no "axes to grind." I was just trying to understand in my own way what the fuss was all about. Rather early in these efforts, I started to develop these **risk comparisons. They convinced me that nuclear power is acceptably safe with lots of room to spare**. If I am a nuclear advocate, it is because developing these comparisons has made me so.

To be certain that this all-important bottom line is not missed, let me review it. **According to the best estimates of Establishment scientists, having a large nuclear power program in the United States would give the same risk to the average American as a regular smoker indulging in one extra cigarette every 15 years**, as an overweight person increasing his or her weight by 0.012 ounces, or as raising the U.S. highway speed limit from 55 to 55.006 miles per hour, and it is 2,000 times less risky than switching from midsize to small cars. If you do not trust establishment scientists and prefer to accept the estimates of the Union of Concerned Scientists, the leading nuclear power opposition group in the United States and scientific advisor to Ralph Nader, then having all U.S. electricity nuclear would give the same risk as a regular smoker smoking one extra cigarette every 3 months, or of an overweight person increasing his weight by 0.8 of an ounce, or of raising the U.S. highway speed limit from 55 to 55.4 miles per hour, and it would still be 30 times less risky than switching from midsize to small cars. The method for calculating these numbers is explained in the Chapter 8 Appendix.