

NUCLEAR ENERGY: OUR FAUSTIAN BARGAIN ?

A. Isotopes: Forms of an element that have different atomic weights due to different numbers of neutrons in their nucleus

Some isotopes are stable – ^{12}C is the lighter, non-radioactive form of carbon

Some isotopes are unstable – ^{14}C is the heavier, radioactive form of carbon

B. Half-life: The time it takes for 50% of an isotope to spontaneously disintegrate

C. Chain Reaction: A multiple fission event

D. The Nuclear Cycle

1. Mining radioactive material
2. Processing uranium
3. Concentrating ^{235}U
4. Generating energy in nuclear power plants
5. Disposal of radioactive waste
6. Decommissioning nuclear power plants

E. Problems with Safety

F. Pollution Problems

1. Thermal pollution
2. Radiation

G. Social Issues Associated with Nuclear Power

1. Terrorism, sabotage and proliferation of nuclear weapons
2. Human error

H. The Future of Nuclear Energy