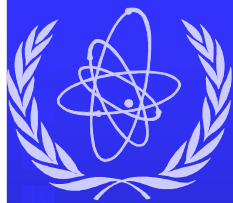




Nuclear Safety and Security in Eastern Europe

*Ken E. Brockman, Director
Division of Nuclear Installation Safety
International Atomic Energy Agency*



Key Focus Areas



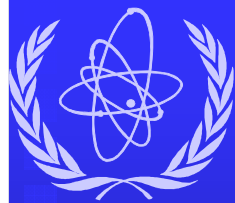
Technology



Safety
and
Security



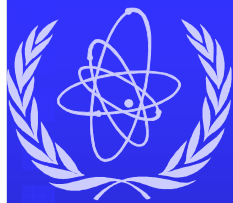
Verification



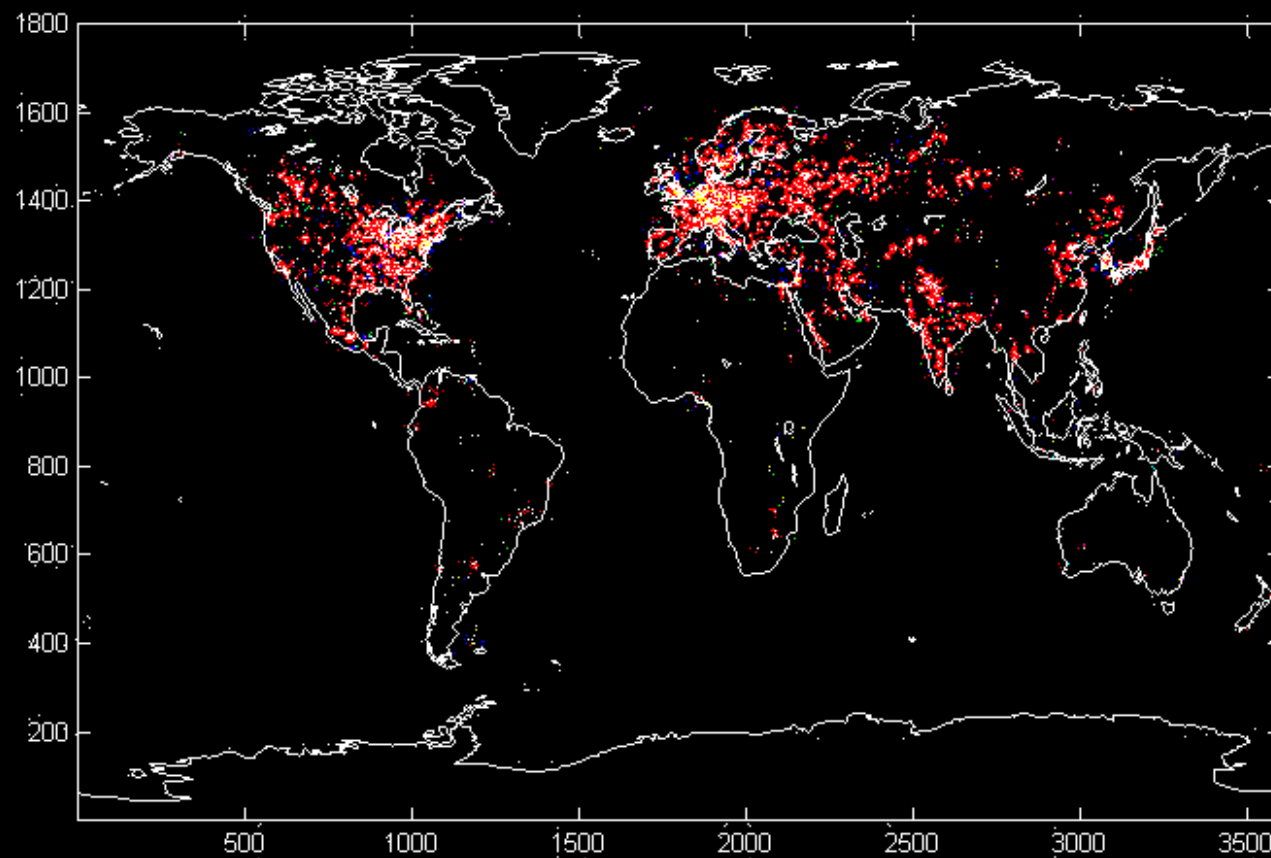
Focus Area #1

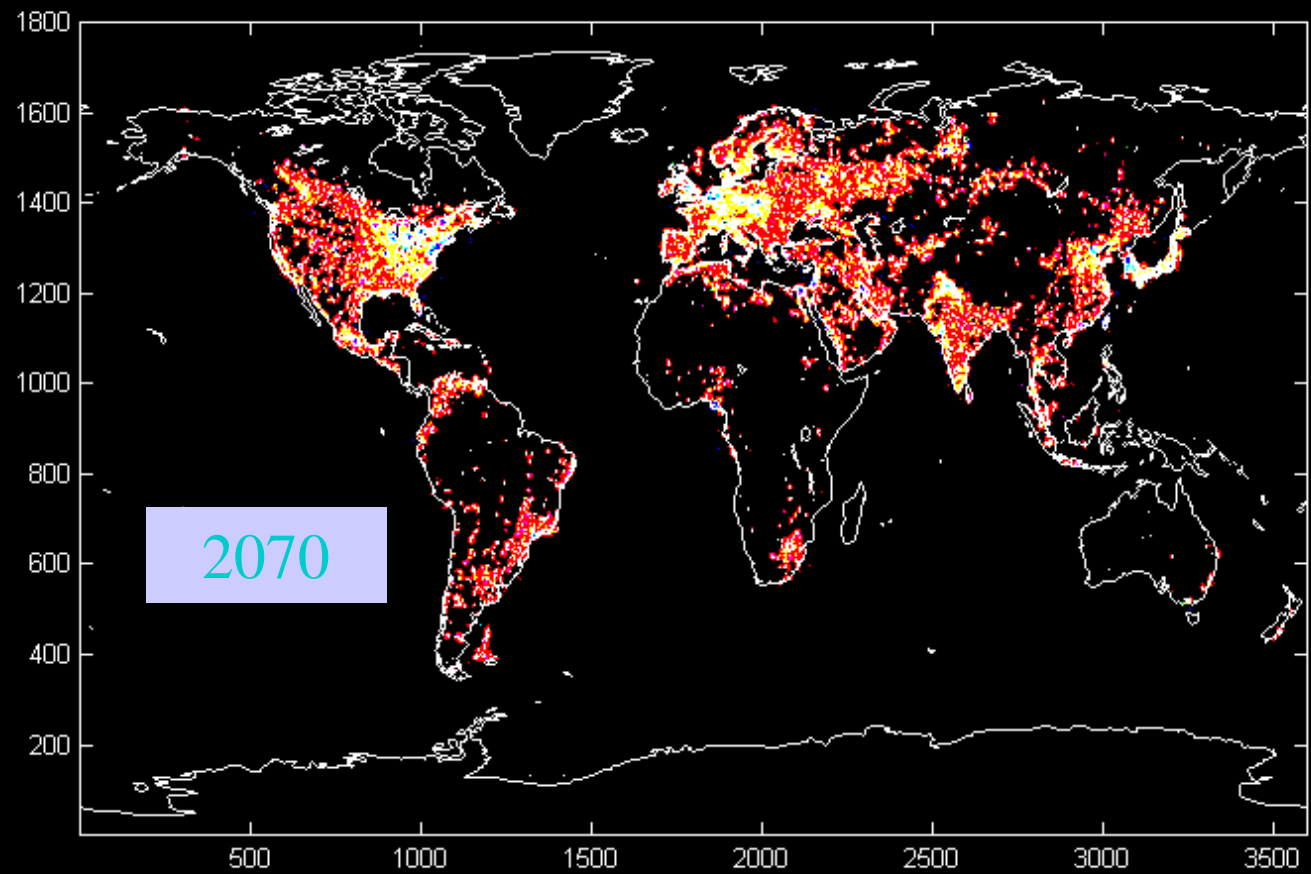
Nuclear Power Technology





Electrical Utilization - 2000







Outlook for Nuclear Power

- Political and Public Resistance
- Political and Public Acceptance
- Slow Growth in Medium Term
- Longer Term Analyses – Growing Role



Focus Area #2

Nuclear Installation Safety





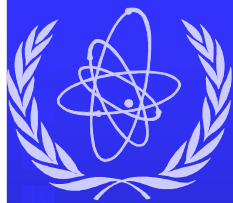
Three Mile Island Accident: March 1979





The Accident at Chernobyl: April 1986

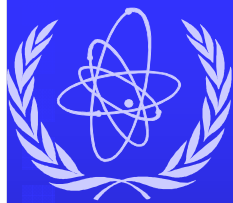




Defense in Depth

Technological Advancements





Defense in Depth

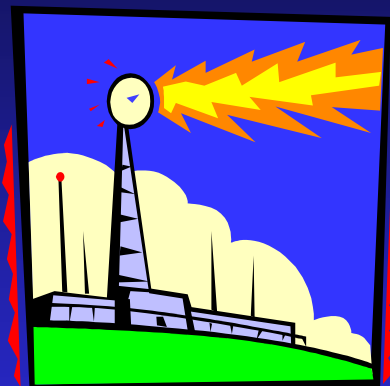
Man – Machine Interface

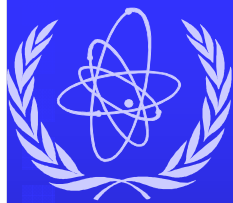




Defense in Depth

Emergency Response





Defense in Depth

Nuclear Security





Physical Protection and Sabotage

Physical Protection

- Protection from External Intervention

- National and Local Responsibilities

- Engineering Features

Sabotage

- Protection from Internal Intervention

- Owner/Operator Responsibility

- Design, Process and Human Factors Features



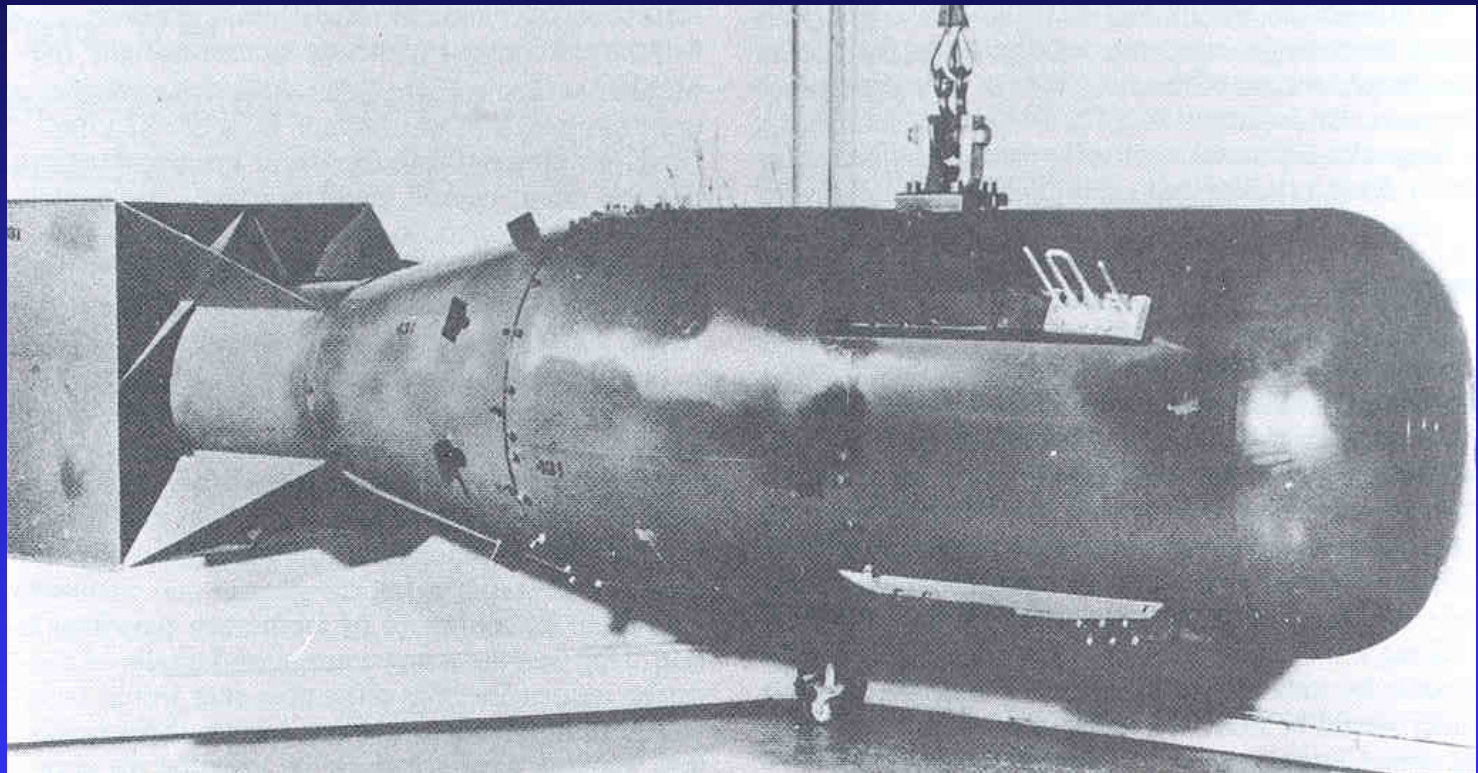
Focus Area #3

Special Nuclear Materials Verification





Nuclear Weapons



Primary Threat: Misuse of Fission Product
Radionuclides



Nuclear Materials



Primary Threat: Illicit Weapon
Manufacture or Dispersal



Nuclear Safety/Security Infrastructure

The Key to the Future

- Operator Competence
- Legal Framework
- Regulatory Propriety
- Financial Stability
- Physical Security
- Emergency Preparedness
- Technical Adequacy
- International Connectivity
- Public Trust and Confidence



International Legal Instruments



Convention for Nuclear Safety
Convention for Physical Protection of
Nuclear Material
Non-Proliferation Treaty



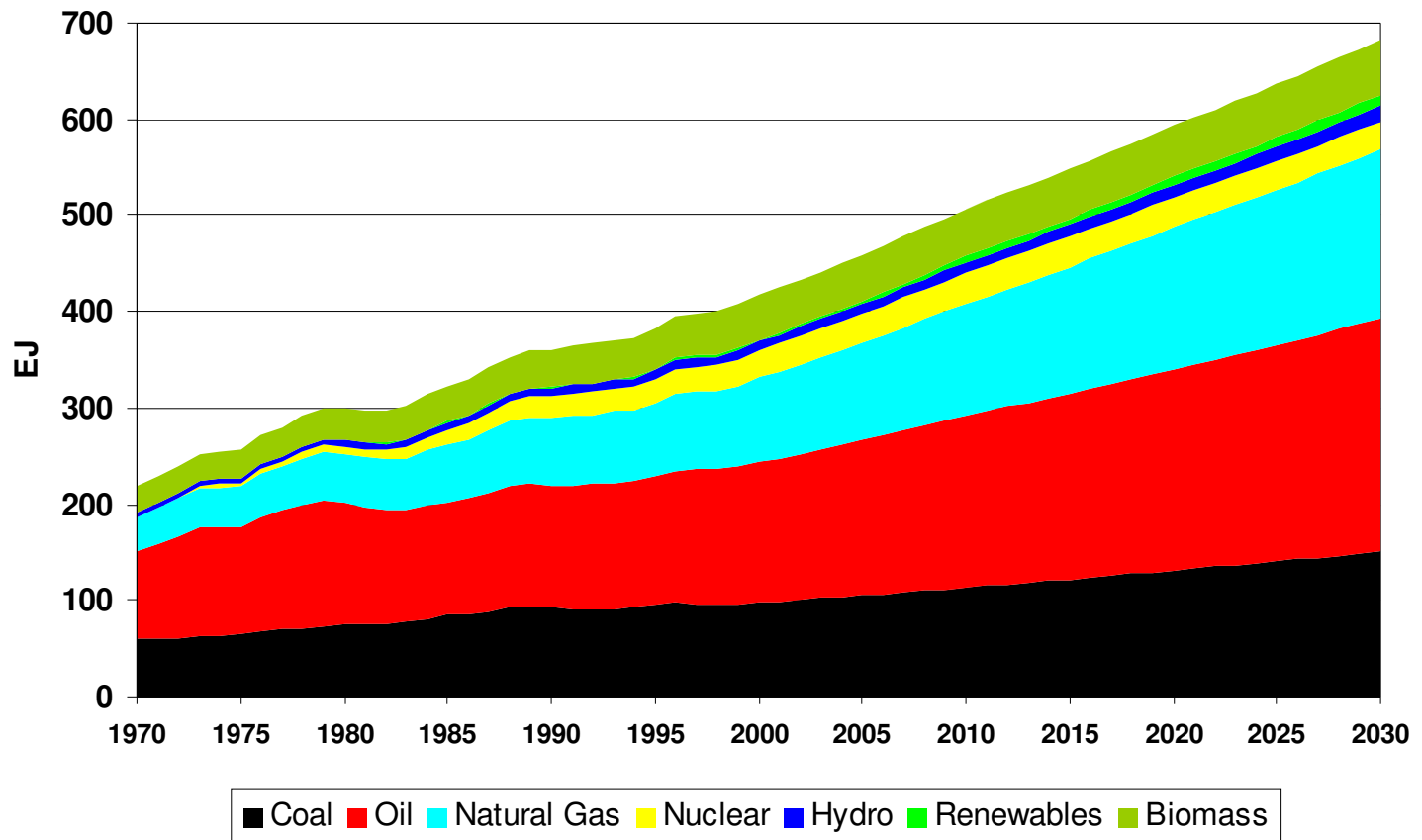
INTERNATIONAL ATOMIC ENERGY AGENCY





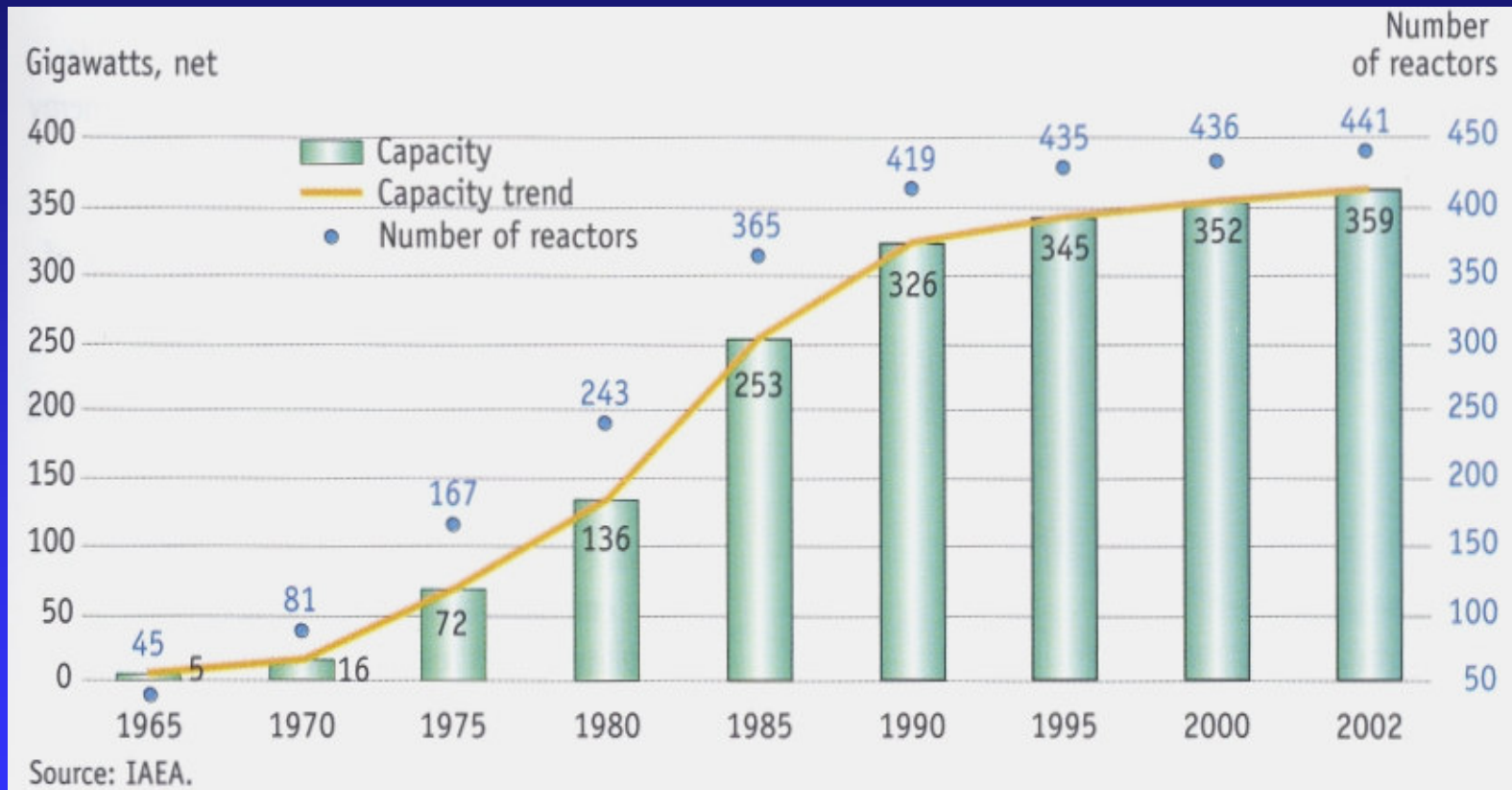


Global Primary Energy Supply 1970-2030





Historical Growth of Nuclear Energy (1965-2002)





Environmental Impacts of Chernobyl



Pripyat, Ukraine

- The 'Dead City':



- The Dying 'Red' Forest

(located between
Pripyat and the
Chernobyl plant)



“Orphan” Radioactive Sources

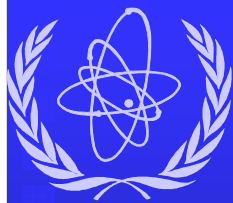




Other Radioactive Materials



Primary Threat: Deliberate
Exposure or Dispersal



Mururoa Atoll





Responding to 9-11



Convened International Experts



Initial Funding



Media Campaign



Result: IAEA Action Plan



INTERNATIONAL ATOMIC ENERGY AGENCY: *Atoms for Peace*

