

# **A Nuclear Fuel Producer's Perspective on Assurance of Supply Initiatives**

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# Nuclear Renaissance

**“We have no time to experiment with visionary energy sources; civilization is in imminent danger and has to use nuclear—the one safe, available, energy source—now or suffer the pain soon to be inflicted by our outraged planet.”**

**James Lovelock**

**“Nuclear energy is the only nongreenhouse gas-emitting power source that can effectively replace fossil fuels and satisfy global demand.”**

**Patrick Moore**

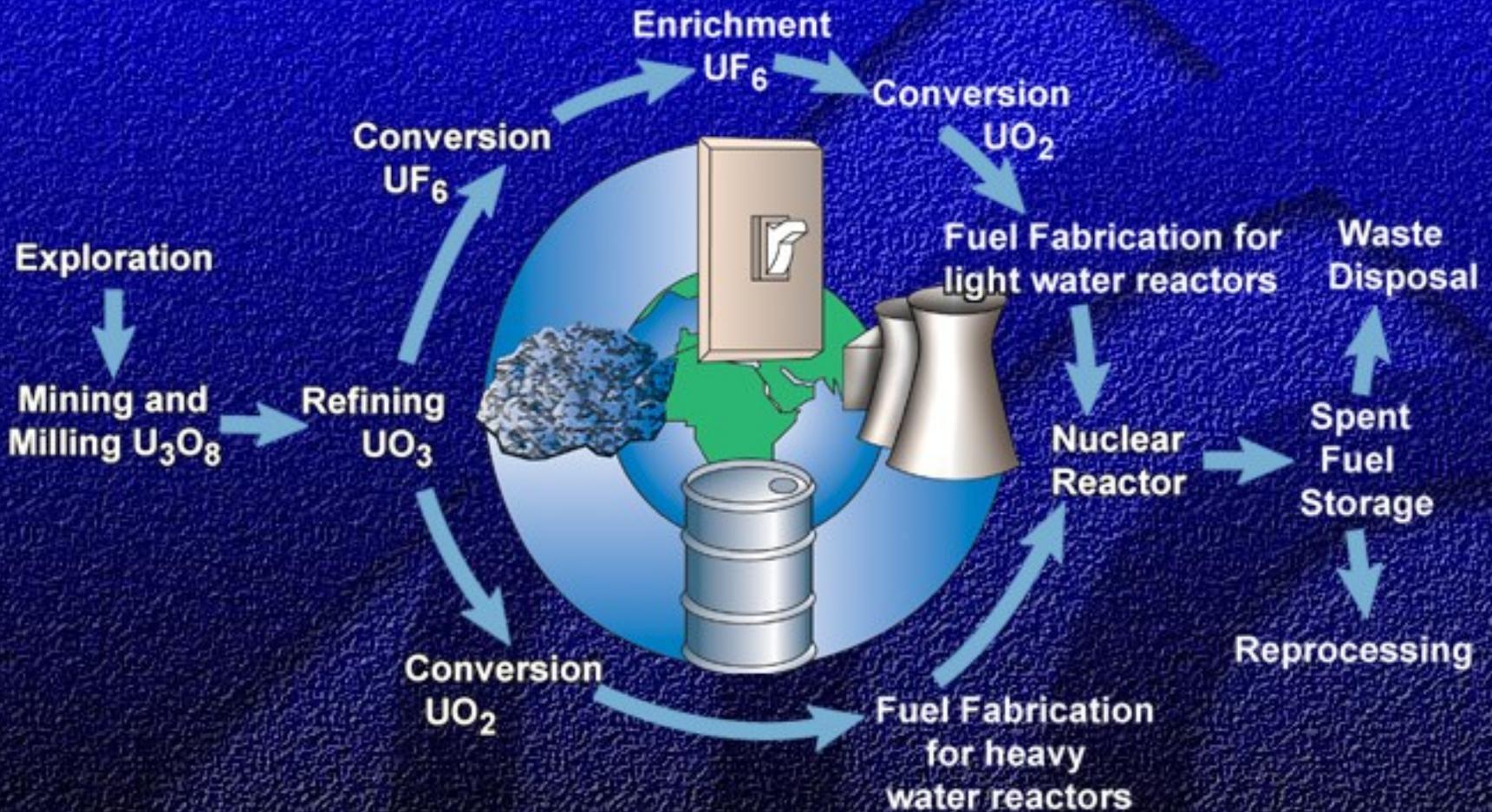
**“I have been a committed environmentalist for many years. It is because of this commitment and the graveness of the consequences of global warming for the planet that I have now come to the conclusion that the solution is to make more use of nuclear energy.”**

**Hugh Montefiore**

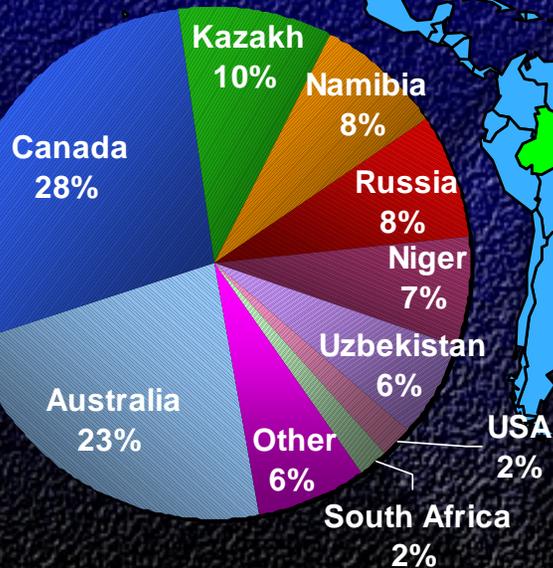
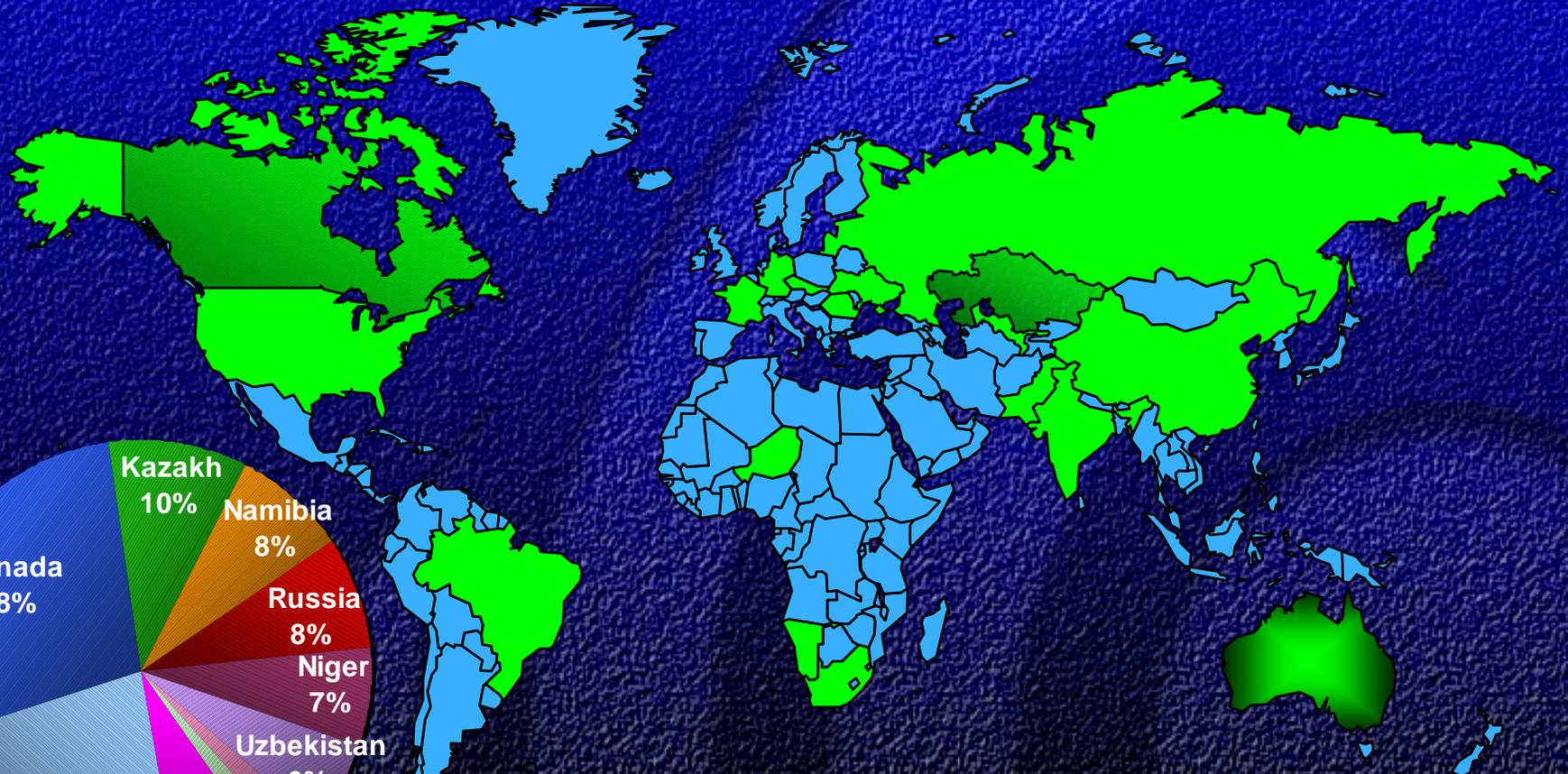
# International Nuclear Fuel Market



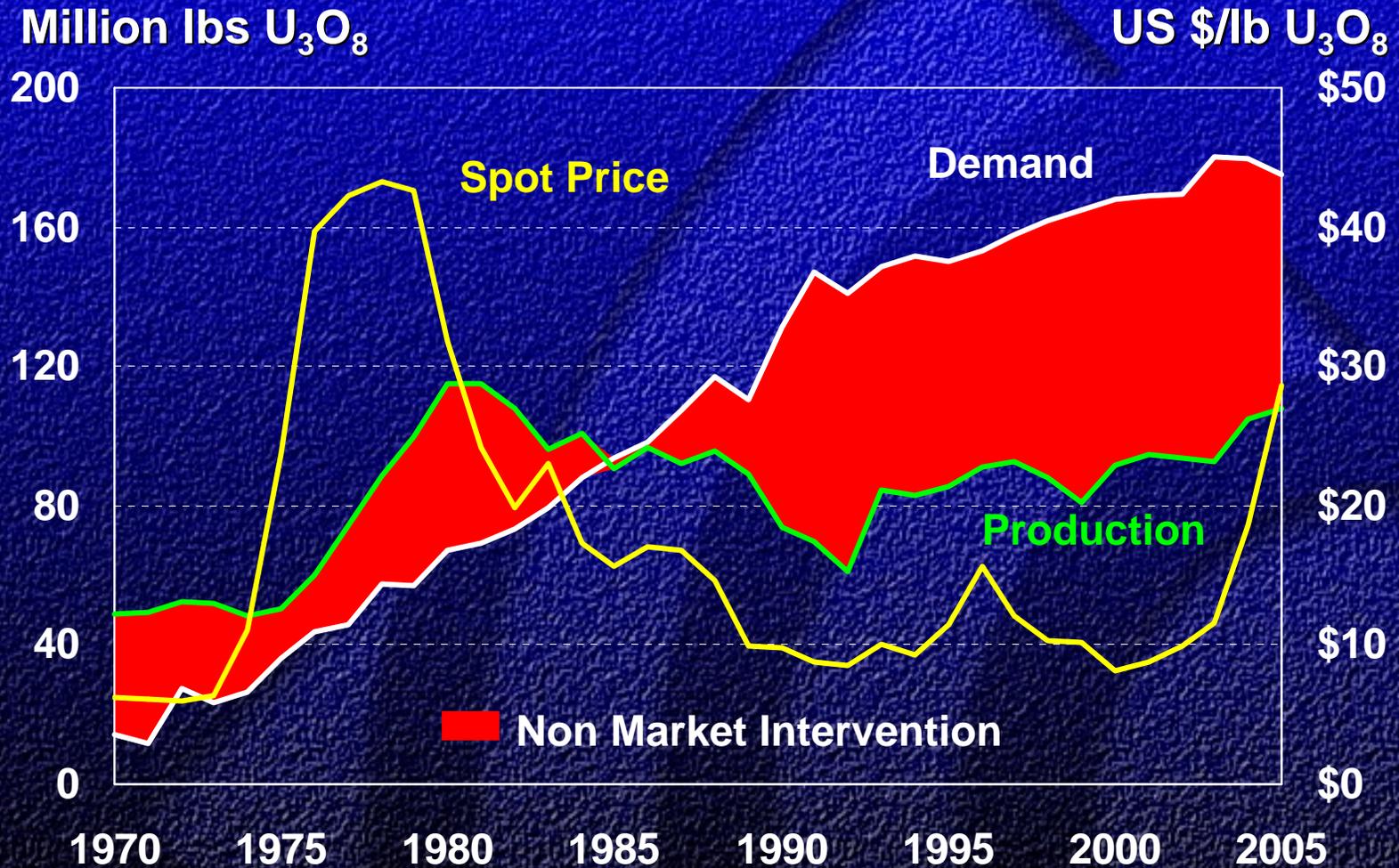
# Nuclear Fuel Cycle



# Uranium Producers



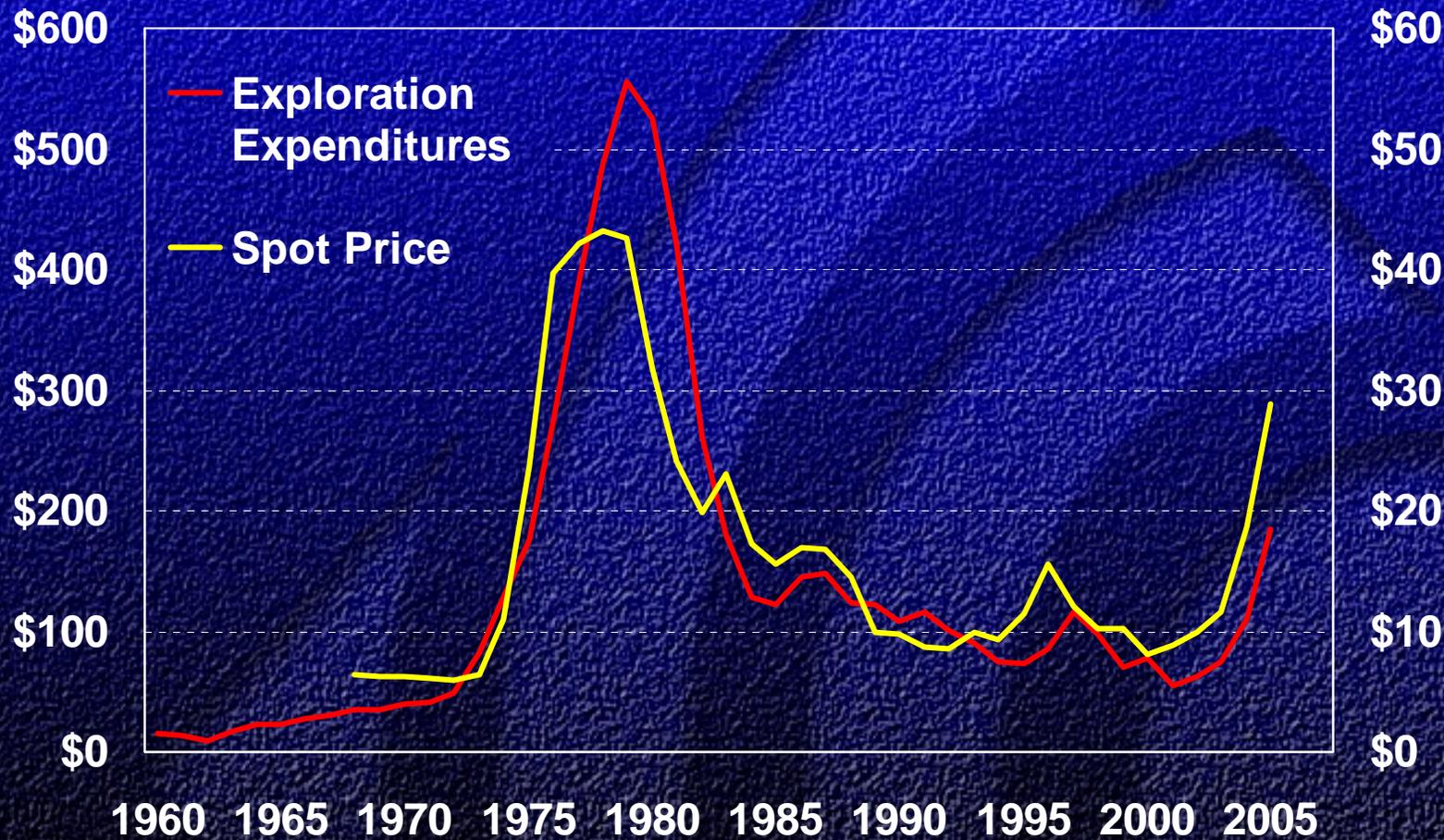
# Uranium Production vs Demand



# Exploration Expenditures vs Spot Price

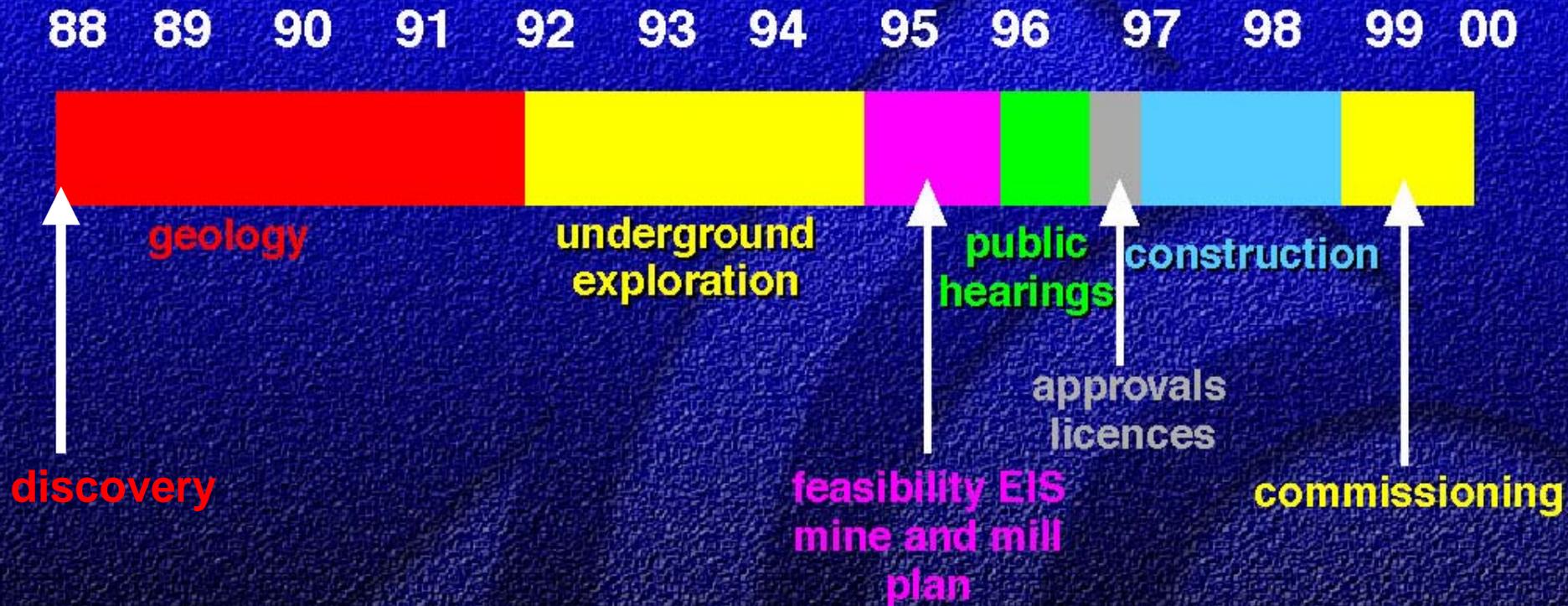
Million US \$

US \$/lb  $U_3O_8$

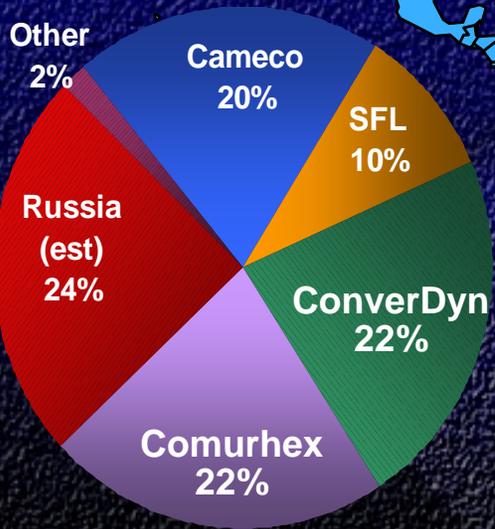
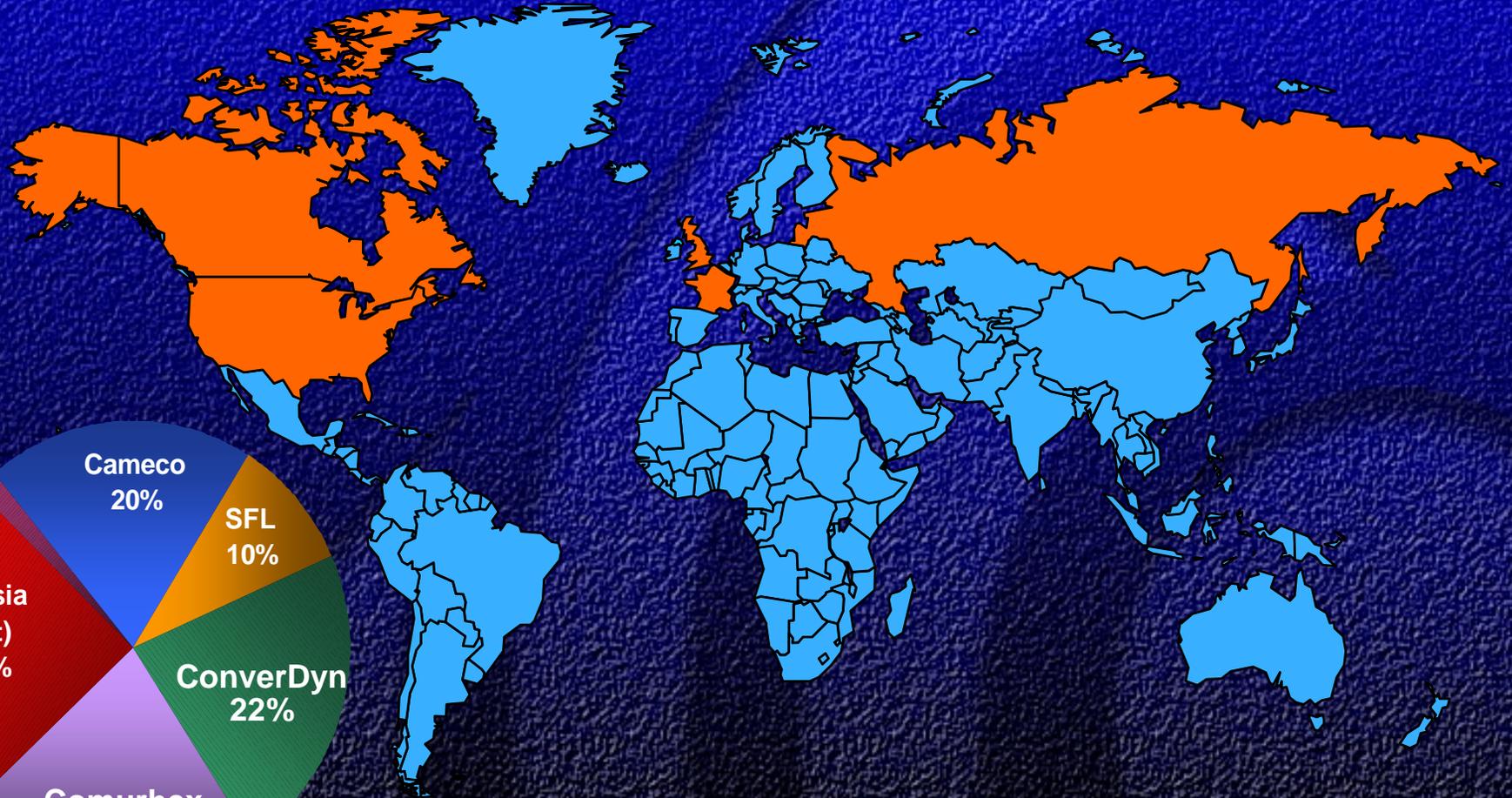


# McArthur Development Timeline

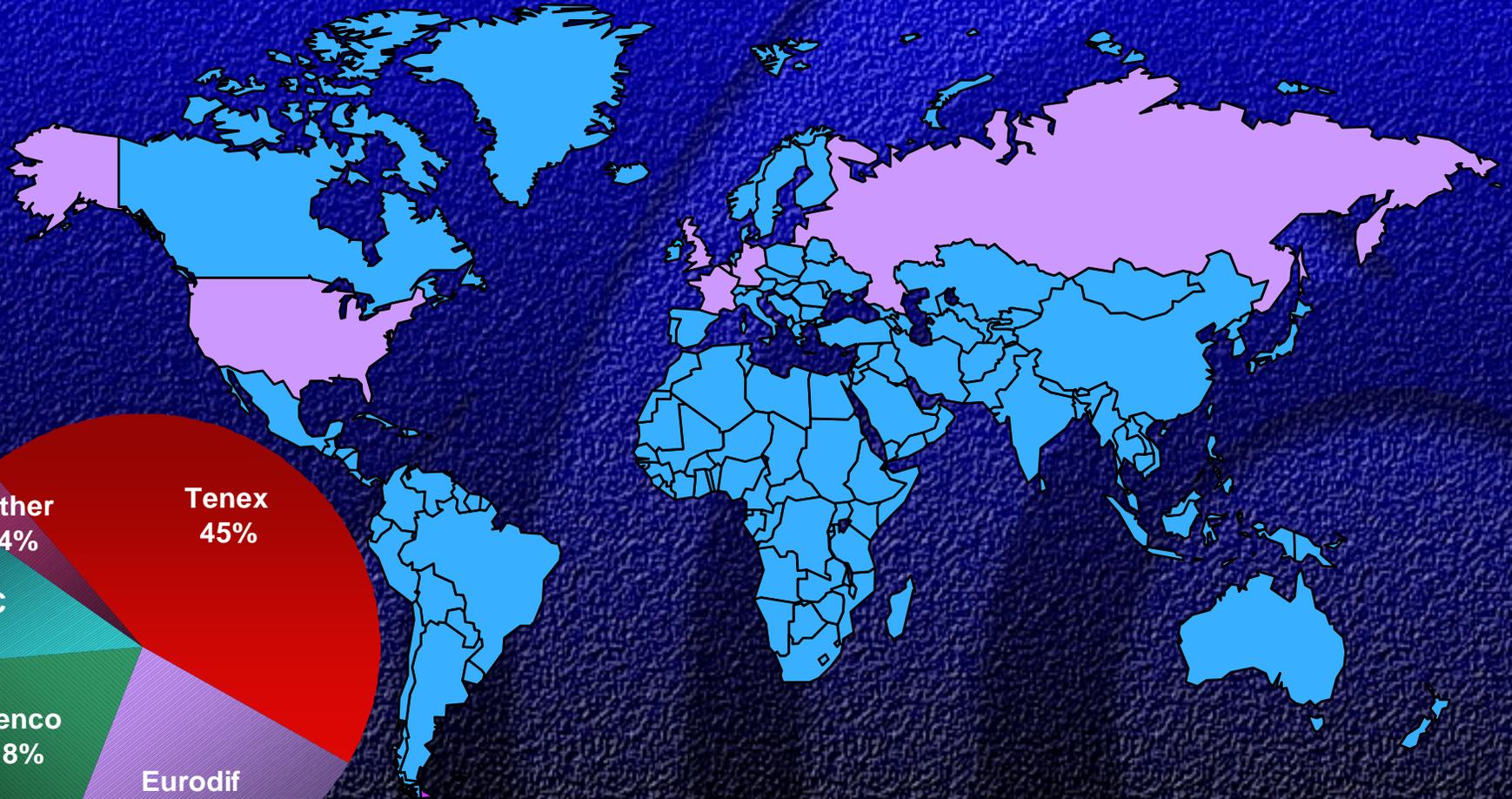
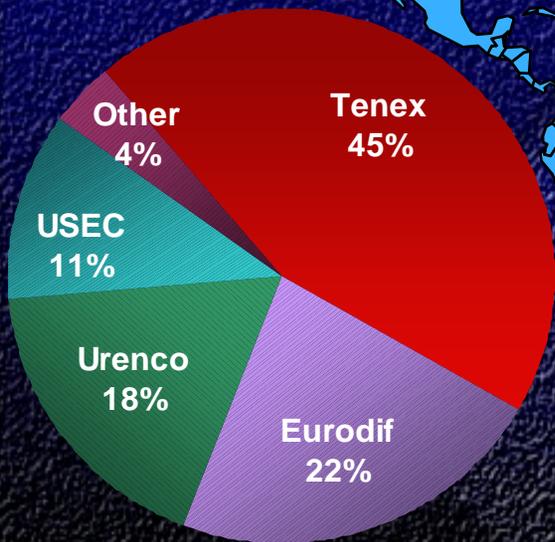
11 years



# Converters

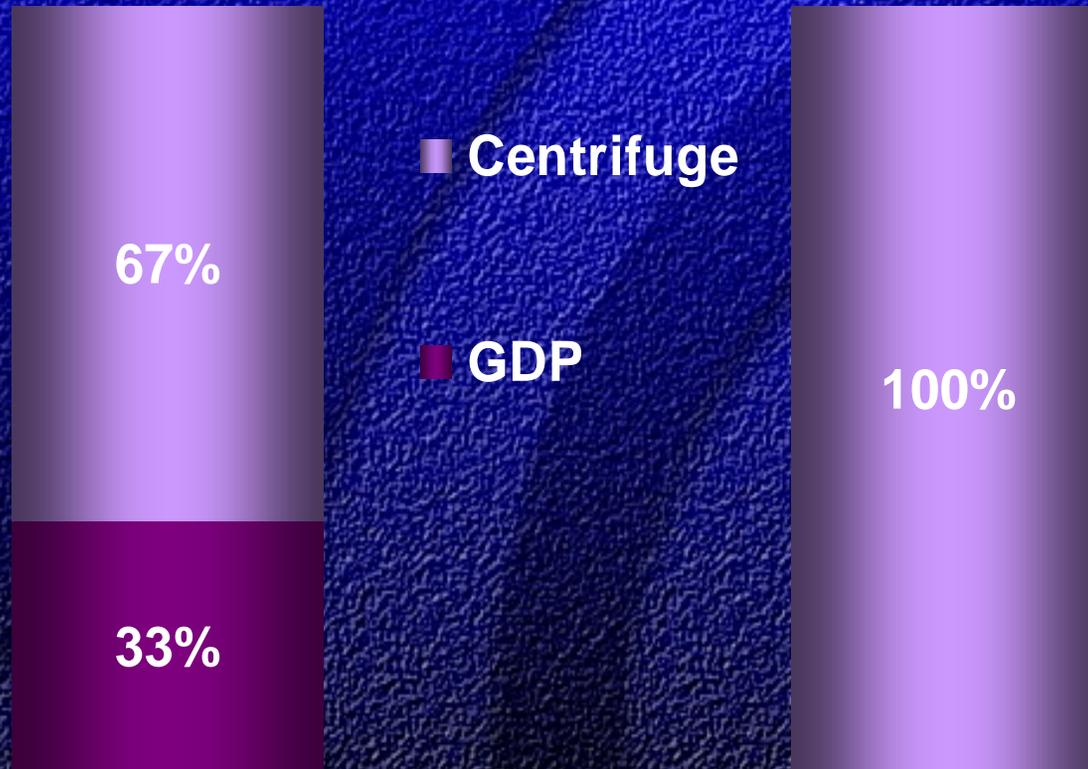


# Enrichers



# Enrichment Capacity

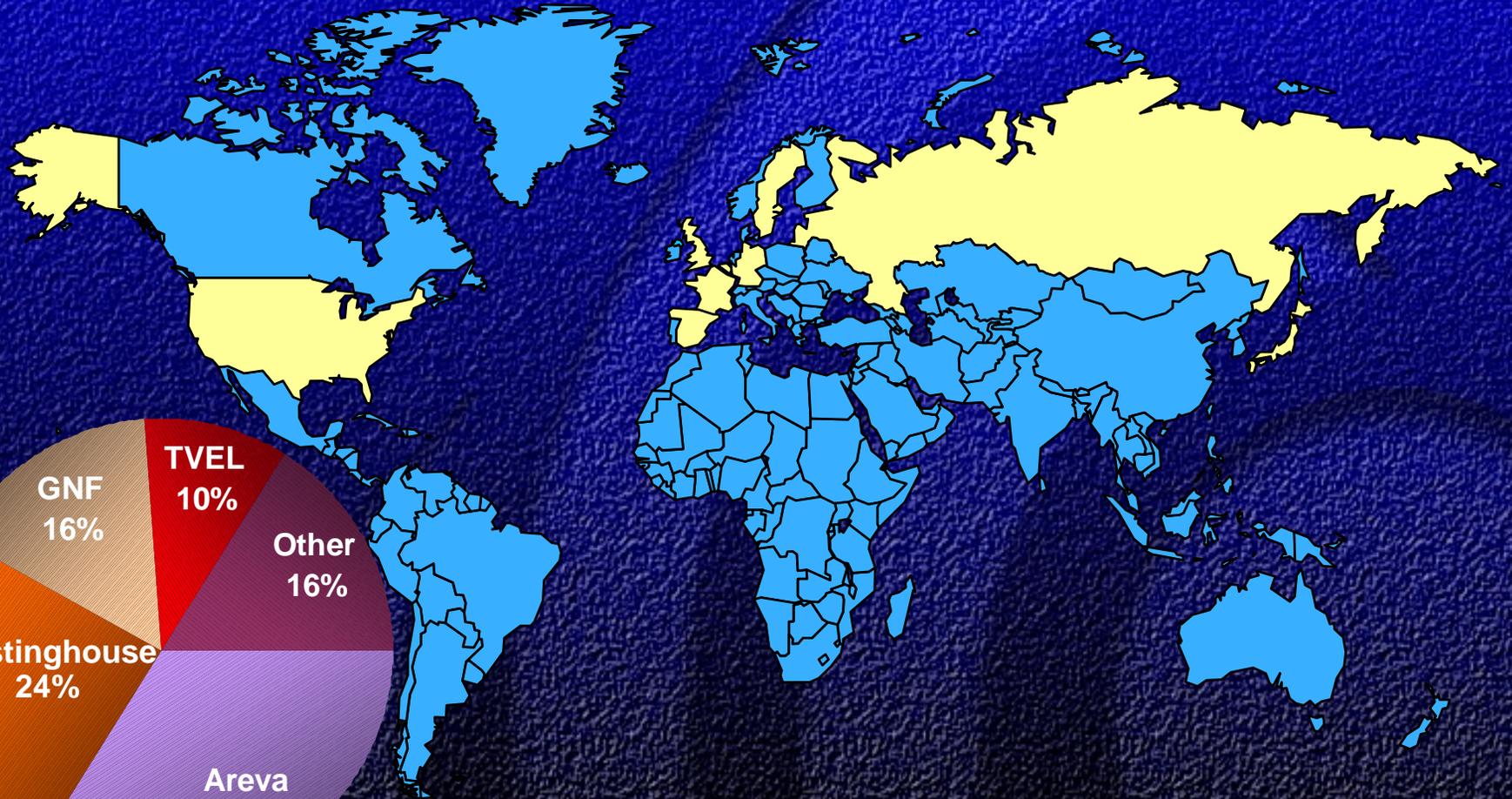
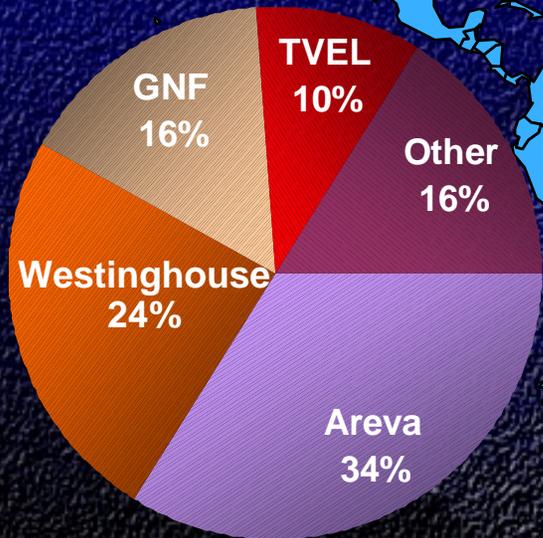
## By Technology



Current

Future

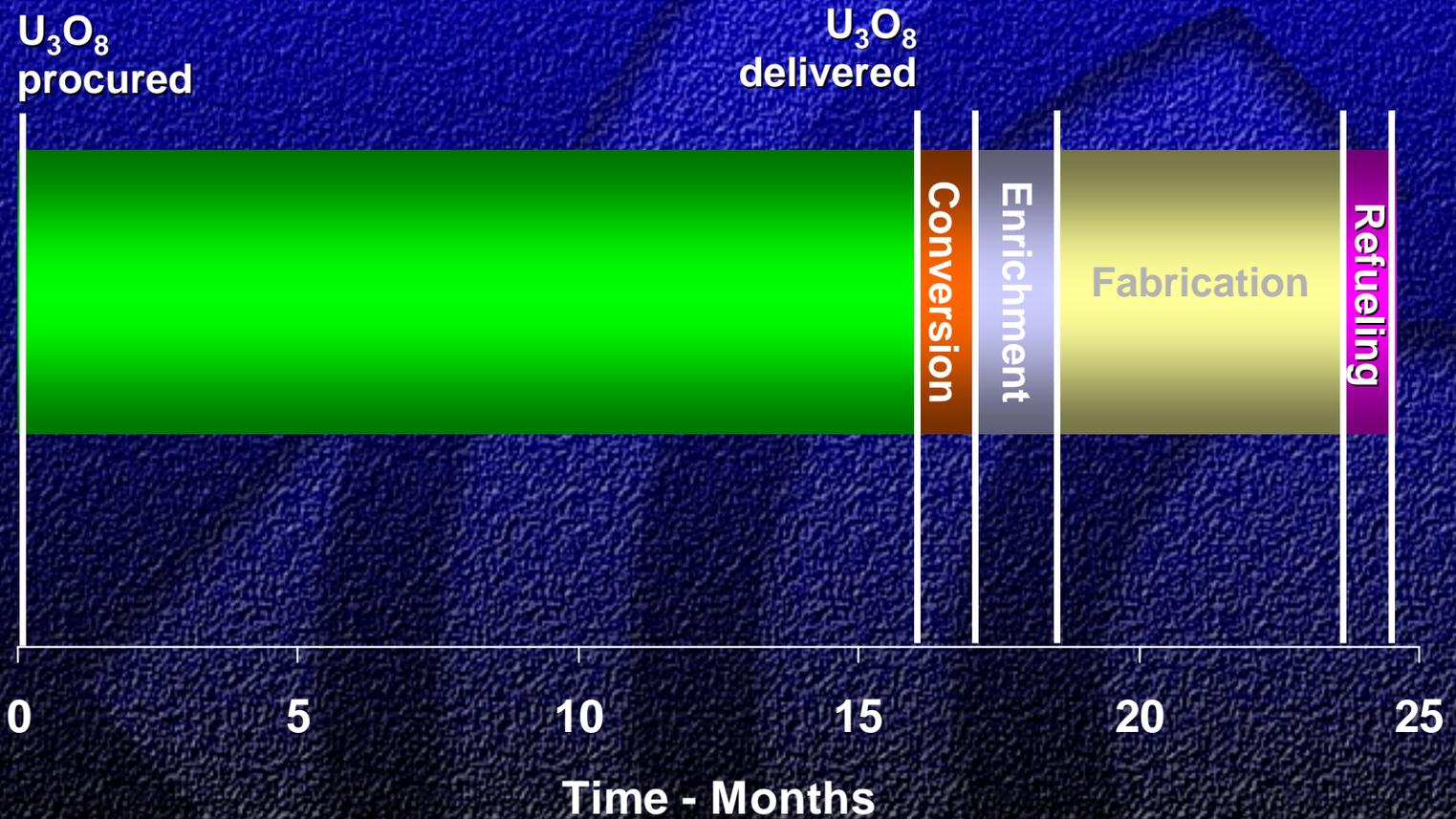
# Fabricators



# Procurement Conventions

Lead Time

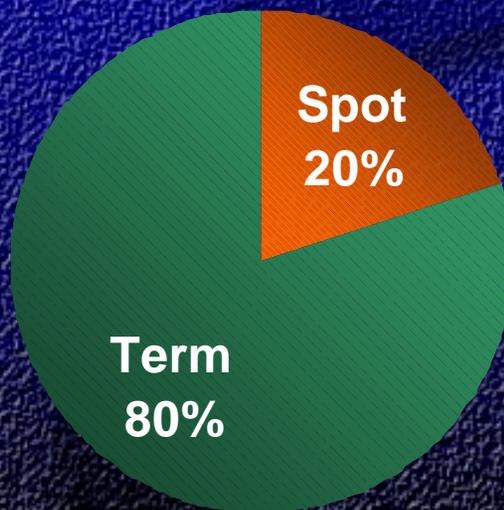
- ◆ uranium procured ~ 2 years prior to reload



# Procurement Conventions

## Contracting

- ◆ fuel procured through long-term contracts
- ◆ no organized exchange



# Transportation & Regulation



**“In over 45 years of transporting nuclear materials there has never been an incident resulting in a significant release of radioactivity. This record of success is a tribute to the effectiveness of the regulatory framework as well as the collective competence of the entities performing packaging and transport activities.”**

*WNTI Website*

# International Nuclear Fuel Market

- responding to supply and demand indicators
- safe, secure, and reliable
- committed to peaceful uses



# Assurance of Supply Initiatives

- **success requires:**
  - **predictability**
  - **transparency**
  - **compatibility with existing market**



market mechanisms  
**more efficient than**  
government intervention

# Assurance of Supply Initiatives

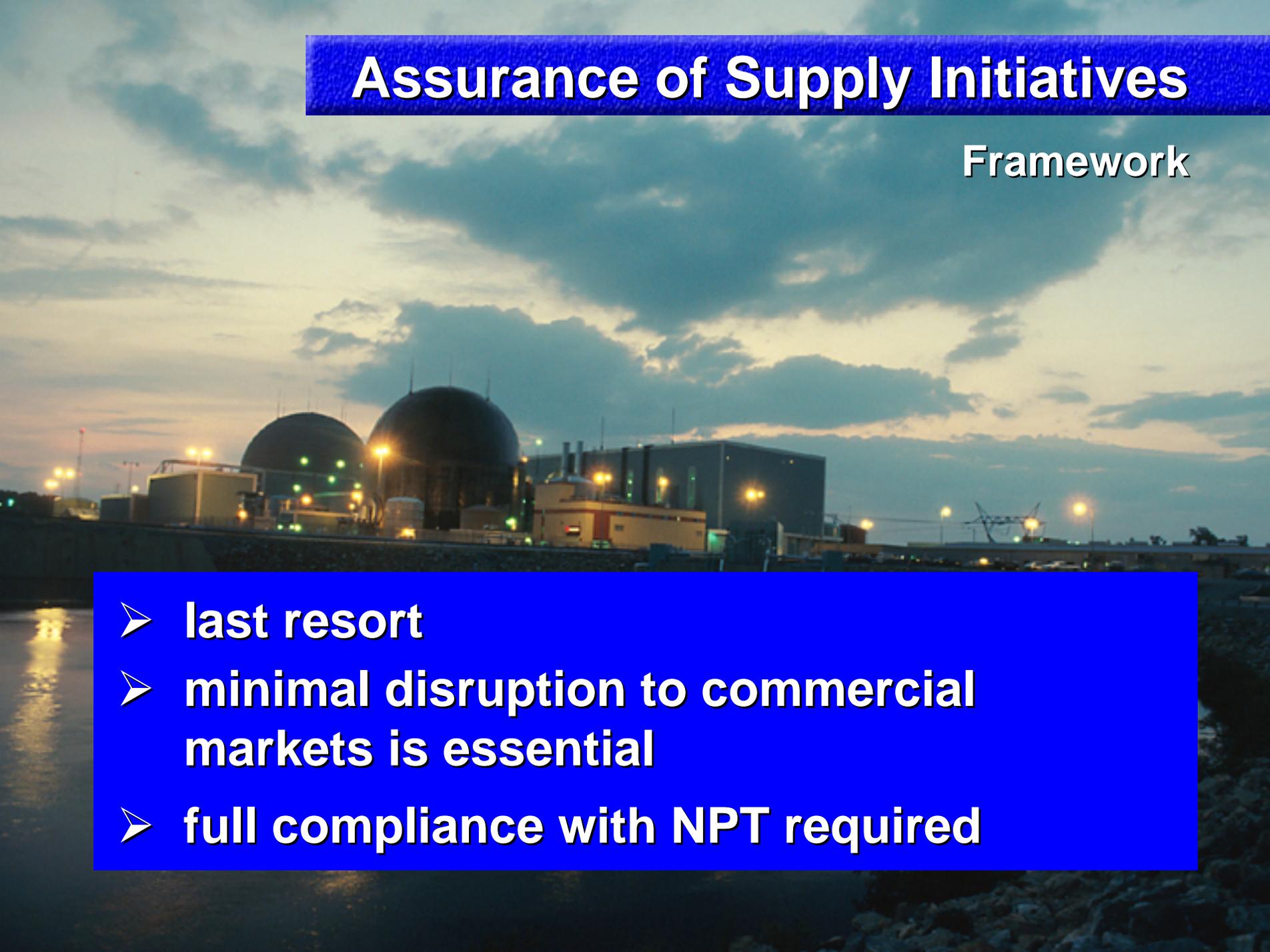
## Physical Inventory

- **What form?**
- **Where would the inventory be held?**
- **Who holds the inventory?**
- **How would the inventory be built?**
- **How big is the inventory?**



# Assurance of Supply Initiatives

## Framework

- 
- A photograph of a nuclear power plant at dusk. The sky is a mix of blue and orange, with scattered clouds. The plant's two large, dark, dome-shaped containment domes are prominent in the center. Various industrial buildings and structures are visible around them, some illuminated by lights. In the foreground, there is a body of water reflecting the lights and the sky. The overall scene is industrial and serene.
- **last resort**
  - **minimal disruption to commercial markets is essential**
  - **full compliance with NPT required**



- **assured fuel supply complements international fuel market**
- **Canada integral participator**
- **Cameco contribution**

