

# Session 3

## Global Partnership: Spent Fuel Management from the User's Perspective

co-chairs

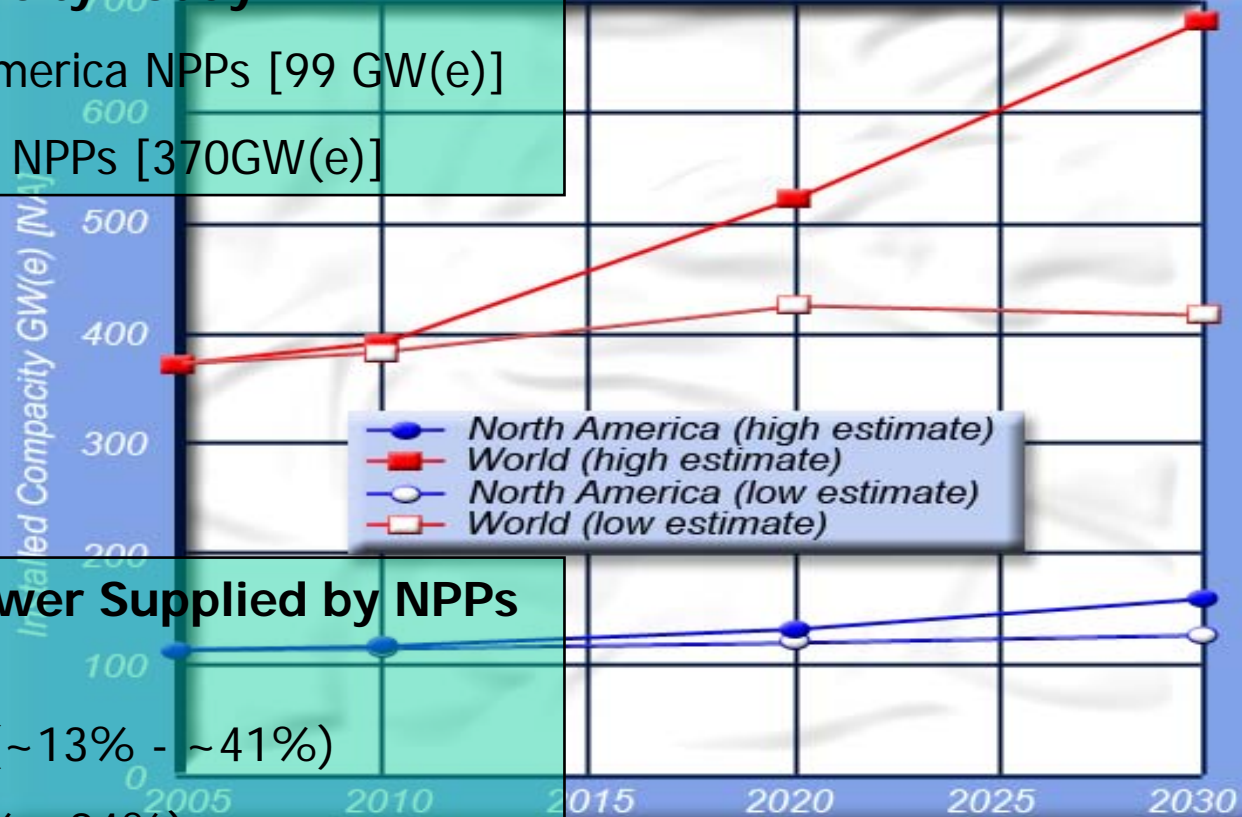
- Dr. Dennis Berry - Sandia National Laboratories (USA)
- Dr. Piero Risoluti - ENEA (Italy)



# Nuclear Power Demand

## Installed Capacity Today

- 103 in North America NPPs [99 GW(e)]
- 435 Worldwide NPPs [370GW(e)]



## Increase in Power Supplied by NPPs by 2030

- North America (~13% - ~41%)
- Worldwide (12% - 84%)

Source: IAEA, 2006. *Energy, Electricity and Nuclear Power Estimates for the Period up to 2030*, Reference Data Series No. 1 2006 July Edition, IAEA, Vienna





# Spent Fuel Projections

Annual Discharge Rate	United States	Worldwide
2000	~ 2,000t HM	~ 10,500t HM

Total Spent Fuel	United States	Worldwide
2000	~ 56,000t HM	~ 230,000t HM
2010		~ 340,000t HM
2020		~ 445,000t HM

Source: IAEA, 2002. Long term storage of spent nuclear fuel – Survey and recommendations: Final report of a co-ordinate research project 1994-1997 (IAEA-TECDOC-1293)



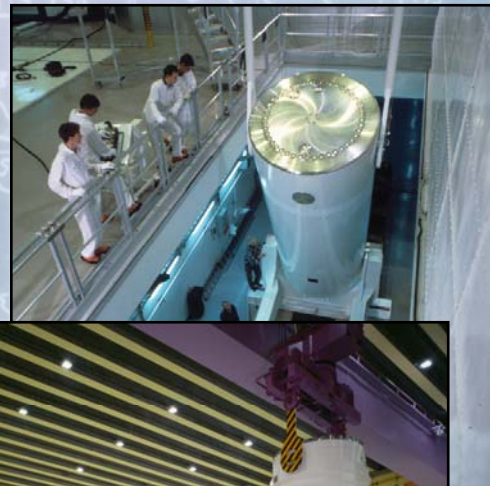
# Global Partnership

## Nuclear energy must:

- Be sustainable and available to all
- Prevent proliferation of nuclear weapons
- Deal with spent fuel and waste

## Under a proposed global partnership:

- Some nations supply reactors and fuel
- Supplier nations take back spent fuel
- Supplier nations provide assurances to "user" nations





# Spent Fuel Storage Situation

## Spent fuel in storage (2000)

- West Europe: about 32.5 kt HM
- East Europe: about 22.8 kt HM
- North and South America: about 72 kt HM
- Asia and Africa: about 17.7 kt HM



Source: IAEA, 2002. Long term storage of spent nuclear fuel – Survey and recommendations: Final report of a co-ordinate research project 1994-1997 (IAEA-TECDOC-1293)



## Current Situation

- Fuel “take-back” an issue in many countries
- No current shared multinational repositories
- Repositories are expensive
  - Yucca mountain:
    - 12.1 billion dollars (1983-2005)
    - 11.2 billion dollars (2006-2017)



# How Should We Proceed?

- Could an international (regional) storage system be a temporary solution? What would be the long term solution?
- What waste management assurances would user states need before “signing up” to a Global Partnership?
- What is being done to solve the current SNF/HLW problem around the world?
- What should the IAEA, industry, and other partners do to develop and implement a sustainable solution to SNF/HLW management?
- What sorts of technical solutions (e.g., waste partitioning and disposal) are possible?





# Panel Members

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