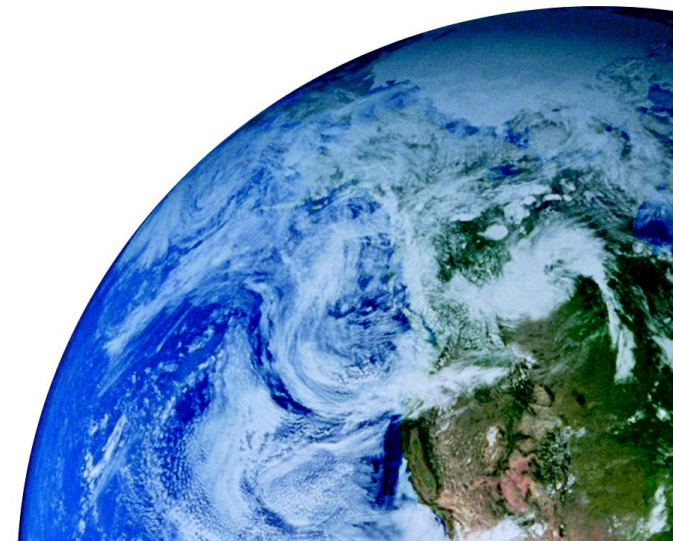


Looking to the future

An industry perspective from WNTI

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Introduction

- Looking to the future
or
looking for the future ?



- Reactors
 - Life extension
 - Electric power output increase
 - New building
- Fuel cycle
 - Mines
 - Enrichment plants
- Transport
 - The life blood must keep flowing!



Challenges

- Demand
 - Quantity: more packagings and more shipments
 - Quality / performances
 - more reliability
 - more capacitywhilst maintaining a high level of
 - safety
 - security
- How to meet the demand?
 - Packaging
 - Transport

To increase the number of the packagings

- More reactors induces the need for more packagings for transport
- Decision are delayed regarding the back end of the fuel cycle; this induces also the need for more packagings for storage
 - Manufacturing capacity for large components may not meet industry demands
 - There is competition
 - with the reactor manufacturing
 - with other industries (oil, gas, etc.)

To increase the capacity of the packagings (1/2)

- Need for high payload packagings
 - To reduce the number of packagings for the same material to be transported
 - Not to increase the number of packagings for more demanding material
 - casks for spent fuel with higher initial enrichment and / or higher burn up
 - packagings for uranium concentrate
 - thermal protection for packagings for UF₆
 - Innovation / “thinking outside the box”

To increase the capacity of the packagings (2/2)



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- Computational tools
 - More and more sophisticated for more and more accurate modeling
 - Does it allow to save time?
 - The adoption of computational tools to reduce or replace impact testing to reduce costs and timescales remains an ambition of many package designers.
- But
- The demand follows the availability! Optimization of the design: performances and also safety (real safety and also justifications)
 - eg burn- up credit

To be able to satisfy the new needs (1/2)



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- New materials to be transported
 - Large components from decommissioning of power plants and fuel cycle facilities
 - Waste arising from decommissioning of facilities
 - To keep data records in order to facilitate characterisation.
and / or
 - To develop characterisation techniques

To be able to satisfy the new needs (2/2)



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- New streams
 - More countries will be equipped with power plants
 - More countries will be involved in the fuel cycle
 - Mines
 - Fuel fabrication plants
 - Expansion of the delivery routes
 - Regulatory infrastructures and regulatory bodies must be developed in countries which are developing a nuclear industry; we need competency in both the industry and in the competent authorities!

To maintain a high level of safety (1/3)

- It is widely recognised that compliance with the IAEA Regulations for the Safe Transport of Radioactive Material provides a high level of safety
- Obviously, it is needed to demonstrate compliance with the Regulations
 - Competent authorities require more justifications.
 - We all want to increase safety rather than paper work.

To maintain a high level of safety (2/3)

- The regulatory regime is now almost stabilised
 - Transports will be more and more international
 - The **implementation** of the Regulations must be harmonised for safety reasons, on the one hand, and in order to avoid undue burden on the stakeholders, on the other hand
 - Stability in the Regulations and their implementation will promote safety
- The Regulations must evolve to take into account the new needs
 - Fissile exceptions
 - Large components

To maintain a high level of safety (3/3)

- It is recognised that the adequacy of the Regulations versus the real conditions of transport and handling must be reviewed periodically
- Whatever is the level of safety which is reached, defence in depth requires that appropriate emergency plans are prepared

To maintain a high level of security (1/2)



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- A high level of security must be achieved
 - The requirements regarding security are increasing
 - IAEA has published the implementing guide “Security in the transport of radioactive material” in 2008.
 - INFCIRC 225, for nuclear material, is under revision and should be published at the end of 2010 / beginning of 2011.
 - The industry will respond appropriately

To maintain a high level of security (2/2)



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- Security must be reconciled with
 - safety
 - information for the public
- Harmonisation among the national security regimes and consistency in their implementation would avoid undue burden on all stakeholders and would increase public confidence in our activities.

To keep the route open (1/2)

- The transport must be accepted by
 - The public
 - The workers
 - The transport companies (airlines, sea lines, service providers, etc.)
 - The authorities (safety, security, customs, port, etc.)
- How to fight against denial and delay of shipments? How to sustain shipments?
 - Training
 - Information
 - Communication with the stakeholders
 - Global acceptance
 - Nuclear liability and insurance
 - Emergency planning

To keep the route open (2/2)



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- Communication is one of the keys to success.
 - We must be prepared to communicate with our stakeholders:
 - In routine conditions of transport
 - In normal conditions of transport,
 - In accident conditions of transport.
 - The communication must be well tailored and proactive
 - Improvisation is not permitted!
 - The communication strategy must consider new media appropriately.

To transport after a long period of storage

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- Uncertainties about the storage period due to the lack or postponement of decision on the backend strategy.
- Strategies have to be defined
 - to prolong the period of safe storage
 - to transport safely after an extended period of storage
- Programmes of inspection during storage must give confidence about the condition of the packages.
- Analysis of gaps is needed to compare current knowledge with what now is needed as a consequence of longer term storage policies or situations.

To transport industrial sources and medical

- Beyond the fuel cycle material, the continuous transport of industrial sources and material for medical applications also is critical.
 - Reductions in source production capacities make denial and delay of shipments even more consequential.
- Recovery / transport / management of orphan sources needs consideration.

- Challenges are numerous
 - But the life blood will keep flowing!
 - All the organs of the nuclear body then will be fed
- The transport industry is fully committed to meet all the challenges it is facing in order to assure the
 - safe
 - efficient
 - reliable

transport of radioactive materials