

**SOLUTIONS FOR SUSTAINABILITY**  
**Striking the Energy and Environmental Balance for 2012**

**Session 1: Finding the right policy mix**

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Key messages

- **Producing energy is not the aim in itself:** it's the response to basic needs that require energy: without energy no agriculture, no transport, no health system, no access to information.
- **With out energy life expectancy drops under 35 years old.** All WHO research put into light the correlation between individual energy consumption and most human development indicators (child mortality, life expectancy, literacy).
- **The global energy demand is going to double in the first half of the 21st century.** Demand is huge, 2 billion people without electricity today, 3 billion in 2050.
- **The constraints are at the same time economical and ecological.** How do we address the need and provide electricity to everybody, at a reasonable price without producing CO<sub>2</sub>?  
In this context, France is today is one of the best of the class for CO<sub>2</sub> emissions. French kWh produces 13 times less CO<sub>2</sub> than the German one and 17 times less than the Danish one.
- Like any mature industry AREVA strives to manage its raw material with a long term point of view by recycling. Operationally this means using maxim potential of its materials, limit waste, limit consumption of natural resources.
- This is why AREVA has developed a technology to recycle spent fuel as an alternative to direct disposal
  - Reprocessing that separates 96 % reusable material ( Uranium +plutonium) from 3% waste
  - By recycling Pu into MOX fuel , France saves 10 % on uranium purchasing
  - Packaging of waste divides radiotoxicity by 10, divides volume by 5, ensures safe internationally agreed specifications (vitrified fission products)
  - Prepares future new plants RNR and Gen IV from 2030-2040 these new plants will be able to use depleted and reprocessed uranium

- The process is sometimes criticised for the risk of proliferation of nuclear material.
  - Non proliferation is a State issue, governed by the non proliferation treaty. All nuclear facilities are under strict control of the INTERNATIONAL ATOMIC ENERGY AGENCY
  - This technology is used by the United States to transform bombs into nuclear fuel “MOX for Peace”.
  - The role of industry is to provide solutions for State issues. In that sense, AREVA has developed a new process called “COEX” where plutonium is never separated. The process extracts a combined plutonium and uranium mix.
  
- In Europe recycling of Pu and Uranium is operational (In France 20 power plants out of 58 use MOX and 2 use recycled uranium.)
  
- The way we operate our reprocessing facility is in line with our SD policy :
  - Low environmental impact (limited releases into the environment)
  - Workers exposition to radiation levels are very low
  - High quality of products
  - No accidents, High safety requirements (containment barriers)