Our Energy Future –
Addressing the dual challenges of climate change and energy security

Nobuo Tanaka
Executive Director
International Energy Agency

International Conference on Nuclear Energy in the 21st Century
Beijing, 20 April 2009
World primary energy demand expands by 45% between now and 2030 – an average rate of increase of 1.6% per year – with coal accounting for more than a third of the overall rise.
Investment of $26 trillion, or over $1 trillion/year, is needed, but the credit squeeze could delay spending, potentially setting up a supply-crunch once the economy recovers.
While technological progress is needed to achieve some emissions reductions, efficiency gains and deployment of existing low-carbon energy accounts for most of the savings.
Change in world energy investment in the 450ppm policy scenario compared to the ‘business as usual’ scenario, 2010-2030

Huge investment in power plants and energy efficiency is required to shift the world onto a 450-ppm trajectory
Total power generation capacity today and in 2030 by scenario

In the 450 Policy Scenario, the power sector undergoes a dramatic change – with CCS, renewables and nuclear each playing a crucial role.
Nuclear share of global electricity (450 ppm Scenario)

Under the 450 ppm scenario, nuclear power supplies around 5200 TWh (18% of total electricity generation) and becomes the third largest source together with natural gas.
Energy Technology Perspectives (ETP) 2008 shows that significant increase of nuclear generation in both OECD countries and non-OECD countries is essential to halve the current level of energy related CO2 emission by 2050.
Challenges and Actions needed

- Challenges which nuclear is facing
  - **Huge initial investment**, which can be only recouped over long term, makes it uneasy to get financing in nuclear power plants
    - especially vulnerable to financing difficulties under current economic crisis
  - **Sufficient human resources** and other production capabilities
  - **NIMBY** (Not In My Backyard) syndrome
  - Appropriate management of **radioactive waste and spent fuel**

- Key actions to be considered by governments
  - On top of safety policy and non-proliferation policy which are prerequisite;
  - Provide **clear and sustained policy support** and an **efficient and effective regulatory system** with predictability for private sector
  - provide additional **financial support** to investors if needed
  - Put in place arrangements for the **management of radioactive waste and spent fuel**
We must invest in all clean energy technologies (e.g. energy efficiency, renewables, CCS, nuclear, electric vehicle etc) portfolios comprehensively to mitigate climate change

- Nuclear can play a significant role in the decarbonisation of the power sector.

Mitigating climate change enhances our energy security

For nuclear, policy action is essential to secure sufficient long-term investments

Consistent and long-term oriented policy frameworks are needed to ensure private sector investment

Economic crisis is an opportunity to place a Clean Energy New Deal at the heart of economic stimulus package everywhere.