

WORLD ENERGY OUTLOOK 2006: FACT SHEET- NUCLEAR

ARE CONDITIONS RIGHT FOR A NUCLEAR REVIVAL?

The WEO-2006 takes an unprecedented look at the role of nuclear power in the world. Nuclear power – a proven technology for baseload electricity generation – could make a major contribution to reducing dependence on imported gas and curbing CO₂ emissions.

- **Concerns over energy security, surging fossil-fuel prices and rising CO₂ emissions have revived discussions** about the role of nuclear power. Nuclear power is a proven technology for large-scale baseload electricity generation that can reduce dependence on imported gas and CO₂ emissions.
- In the Reference Scenario, world nuclear power generating capacity increases from 368 GW in 2005 to 416 GW in 2030. **In the Alternative Policy Scenario, greater use of nuclear power contribute about 10% of the avoided emissions in 2030.** In this scenario, additional investment in nuclear power raises nuclear power generating capacity to 519 GW by 2030.
- New nuclear power plants can produce electricity at a cost of between 4.9 and 5.7 cents per kWh, if construction and operating risks are mitigated. **Nuclear power is cheaper than gas-based electricity if gas prices are above \$4.70 to \$5.70 per MBtu.** It is more expensive than conventional coal, unless coal prices are above \$70 per tonne or nuclear investment costs are less than \$2 000 per kW. Nuclear would be more competitive if financial penalties on CO₂ emissions were introduced.
- **Nuclear power generating costs are less vulnerable to fuel-price changes** than coal- or gas-fired generation. Moreover, uranium resources are abundant and widely distributed around the globe. These two advantages make nuclear power a valuable option for enhancing security of electricity supply.
- Nuclear power plants are **capital-intensive, requiring initial investment between \$2 billion and \$3.5 billion** per reactor. For the private sector to invest in such projects, governments may need to reduce the investment risk.
- **Uranium resources are not expected to constrain development** of new nuclear power capacity. Proven resources are sufficient to meet world requirements well beyond 2030, even in the Alternative Policy Scenario. Investment in uranium mining capacity and nuclear fuel manufacture production capacity must, however, increase sharply to meet projected needs.
- **Economics is not the only factor** determining the construction of new nuclear power plants. Safety, nuclear waste disposal and the risk of proliferation are real challenges which have to be solved to the satisfaction

of the public, or they will hinder the development of new nuclear power plants.

- Public concerns must be addressed, but **nuclear power will only become more important if private investment is facilitated** by the governments of countries where nuclear power is acceptable.