FORATOM
european atomic forum

FORATOM RESPONSE TO ENERGY GREEN PAPER CONSULTATION

Introduction

The European nuclear industry welcomes the European Commission's initiative to launch a broad debate on an energy policy for Europe with the Green Paper: "A European Strategy for Sustainable, Competitive and Secure Energy".

The EU has highlighted the importance of improving security of energy supplies, and meeting the reduction targets for greenhouse gas emissions while enhancing the EU's competitiveness in accordance with the goals of the Lisbon strategy.

Nuclear energy has a key role to play in enhancing competitiveness, fighting climate change and reducing external energy dependency, thereby promoting sustainable development.

Efficient demand-side management and wider promotion of renewable energies cannot meet the EU's ever-growing need for electricity. World electricity consumption is forecast to more than double by the year 2050. An estimated 750GW of new capacity needs to be built in the EU by 2030 in order to meet the increasing demand and replace existing plants[1]. All energy sources are needed in order to meet the growing thirst for electricity. Removing any option from the energy mix would diminish diversity and as a result, hinder security of supply.

Nuclear energy today supplies almost one third of the EU's electricity (31%). The European Commission can help ensure that nuclear energy continues to play a significant role in meeting the EU geopolitical, economical and environmental challenges.

A. Competitiveness and the Internal Energy Market

- Q3: Apart from ensuring a properly functioning market, how can the EU stimulate investments in infrastructure and generation capacity?

Foratom members, as investors in the European energy sector, view it as important that nuclear energy is recognised for the benefits it brings as part of the EU's energy mix. Acceleration, streamlining and clearness of authorisation procedures in Member States and increasing transparency in the market would also help future investment in the energy sector.

- Q4: How can it be ensured that all Europeans enjoy access to energy at reasonable prices?

The EU can benefit from stable and affordable electricity prices. The cost of nuclear electricity has shown itself to be stable and predictable, and has the advantage of being able to compensate for electricity price increases resulting from fluctuations in fossil fuel costs. Changes in nuclear fuel cost have little impact on final

[1] Source: OECD-IEA World Energy Outlook 2004 Edition

electricity price as uranium represents a very small proportion of the overall cost of producing nuclear electricity. Recent international studies (e.g. OECD) have confirmed that nuclear electricity in almost all cases is more competitive than electricity from fossil fuels. Most nuclear power plants operate continuously as a base load with very high capacity factors and they are normally only stopped for refuelling and routine maintenance.

- Q5: How can the internal energy market contribute to maintaining employment levels?

Nuclear can promote economic development. Ensuring the competitiveness of industry is vital in boosting EU employment levels. For energy intensive industries in particular, stable and affordable energy prices are of paramount importance to sustain economic growth and create jobs in the EU. Clean, affordable and reliable sources of energy, like nuclear electricity, play a vital role in economic development and in maintaining and enhancing our living standards and general welfare. The nuclear industry represents an important indigenous added value to the goals of the Lisbon strategy.

In addition to these macroeconomic impacts, nuclear significantly contributes to generate direct and indirect employment within local and regional communities.

C. Diversification of the Energy Mix

- Q8: What should the EU do to ensure that Europe, taken as a whole, promotes the diversification of energy supplies?

Europe will require a diversified and flexible energy mix in order to meet the combined challenges of security of energy supply, CO_2 reduction and delivery of electricity at competitive prices. Nuclear energy can effectively address all these challenges. The ongoing debate surrounding Europe's energy mix should focus on the low-emitting technologies, including nuclear power.

Strengthen security of energy supply by reducing reliance on imported fossil fuels and electricity. Uranium is available from a wide range of sources in countries that are politically stable. Current estimates for world uranium reserves indicate sufficient resources to sustain current operations and also support a significant expansion of nuclear energy[2]. In addition, already existing technologies permit a more efficient use of these resources (e.g. next generation reactors). Also, the fuel volume requirements of a nuclear power plant are substantially less than those for fossil fuel plants. Operators in the EU typically carry at their sites several years of fuel supply, thereby contributing to the security of supply.

D. Sustainable Development

- Q9: How can a common European energy strategy best address climate change, balancing the objectives of environmental protection, competitiveness and security of supply?

[2] According to the Joint report of IAEA and NEA/OECD "Uranium 2005: Resources, Production and Demand" (p. 78), there is 270 years of 2004 world nuclear electricity generation with total conventional resources and 675 years if phosphates are included.

The EU needs to argue for the wider use of low emitting technologies.
At present, low-CO_2 energy sources supply less than 21% of EU25 primary energy consumption. The European energy strategy should set ambitious targets in order to progressively increase the share of low-CO2 energy sources in its energy mix. An objective of 40% of EU25 primary energy consumption through low-CO_2 energy sources by 2030 would encourage the balanced development of nuclear, biomass, hydroelectricity and renewables while respecting Member States' energy choices.

Nuclear can help curb CO_2 emissions. Nuclear energy as a part of a balanced energy mix has a role in reducing dependency on fossil fuels and thus minimising the long-term negative impact on the climate. During normal operation, nuclear power plants release no greenhouse gas emissions into the atmosphere. When analysed in detail, the life-cycle greenhouse gas emissions of a nuclear MWh are up to 100 times inferior to those of the most efficient natural gas technology and equivalent or inferior to those of most wind power installations[3]. Today, the use of nuclear electricity in the EU25 contributes by saving nearly 700 million tonnes of CO_2 emissions a year, which is equivalent to the annual emissions of the whole private European car fleet.

When there is a shift towards a hydrogen economy, nuclear energy could have an important role to play as an economic means of low carbon hydrogen production, principally as fuel for transport.

Nuclear is a clean form of energy generation, compared with other generating technologies (see ExternE study[4]). Also, Europe's nuclear industry is highly committed to minimising environmental impacts, ensuring safety and promoting social welfare.

Nuclear energy contributes to security of energy supply in the EU by diversifying EU energy mix and reducing EU external energy dependency (see Q8).

Finally, nuclear delivers electricity at stable and affordable prices (see Q4).

Nuclear provides a proven answer to climate change, in addition to contributing significantly to environmental protection, competitiveness and security of supply. Nuclear is a sustainable form of energy.

E. Innovation and Technology

- Q11/12: What action should be taken at both Community and national level to ensure that Europe remains a world leader in energy technologies? / Which topics/technologies should an EU energy technology strategy focus on developing?

The European nuclear industry currently enjoys a world leadership role in reactor design, fuels and services; its R & D activities in nuclear science and technology are among the best in the world.

[3] Sources: 1) Meier & al. (2005) *US electric industry response to carbon constraints, Lifecycle assessment of supply side alternatives*, Energy Policy 33, 1099-1108, University of Wisconsin-Madison, 2) IAEA Bulletin (2000) *Greenhouse gas emissions of electricity generation chains, Assessing the difference,* http://www.iaea.org/Publications/Magazines/Bulletin/Bull422/article4.pdf, 3) OECD-NEA *Nuclear Energy and the Kyoto Protocol* (2002), 4) *Environmental Product Declaration of Electricity from Torness Nuclear Power Station*, May 2005.
[4] European Commission, The European Union ExternE Study, 1998.

In order to ensure the reliable, safe and economical operation of the current nuclear fleet, as well as to keep the nuclear option open in the longer term by enabling participation in the development of new reactors, the European scientific and technical expertise needs to be maintained and renewed.

Europe's technological edge should be maintained and the EU should continue to play a major role in the development of Generation-4 nuclear systems; the deployment of Generation-3 reactors should be further encouraged and a sound scientific and technical basis for demonstrating the technologies and safety of geological waste disposal should be established.

The EU and Member States should encourage a positive investment climate for the energy sector, promoting security of supply, if it is to compete successfully in the world's economy.

G. European Energy Policy

- Q15: Do you agree that there is a need to develop a new, common European strategy for energy?

There is a need to develop common European principles on which energy policies should be based. However, the final decision on implementation should be the responsibility of individual Member States, taking into account that choices made by one Member State inevitably have an impact on the energy security of its neighbours and of the Community as a whole, as well as on competitiveness and the environment.

- Q16: What should be the core principles of European energy policy?

The core to principles of an EU energy policy should be that **all energy sources are needed** for EU's security of supply, competitiveness and sustainable development. In Member States the core principles should be the same as that of the EU: to reduce energy import dependency and to promote low carbon emitting energies. The implementation of these principles should remain the responsibility of Member States.

- Q18: Do you think that greater attention to energy at both EU and Member State level can substantially help to achieve the goals of the strategy for growth and jobs (Lisbon process)?

The Lisbon Strategy aims at establishing optimal conditions for a strong and sustainable growth of the European Union. A key condition for attaining this objective is to provide European citizens and industry with ample access to competitive, sure (regarding both safety and security of supply) and sustainable energy sources. Nuclear energy contributes significantly to the security of energy supply in the European Union by supplying 31% of its electricity demand. It also plays an important role in curbing climate change and ensuring competitiveness of the European industry. Greater attention to the energy mix as a whole, including nuclear energy, could help achieve the Lisbon goals.

* * *