

## FORATOM Priorities for an EU Energy Union

*The European Atomic Forum (FORATOM) is the Brussels-based trade association for the nuclear energy industry in Europe. The membership of FORATOM is made up of 16 national nuclear associations. Through these associations, FORATOM represents nearly 800 European companies working in the industry and supporting around 800,000 jobs.*

### **Nuclear Energy in the EU**

*Today, nuclear energy represents nearly 30% of the EU's electricity. Nuclear electricity is generated in 14 of its 28 Member States (MS). During operation, nuclear power plants do not release any significant carbon dioxide (CO<sub>2</sub>) or other greenhouse gases (GHG) and their life-cycle emissions are also low. They constitute a reliable source of continuous supply of electricity because they operate at very high capacity levels. The cost of the electricity produced has shown itself to be stable and competitive and not heavily influenced by fuel prices. Uranium is a naturally occurring and abundant global resource available from a range of politically stable countries. Furthermore, the European industry is a world leader in reactor and fuel cycle activities. Consequently, nuclear energy helps reduce the quantity of carbon emissions emitted by the electricity sector, contributes significantly to security of supply and stable, long-term and highly qualified employment, and stimulates economic competitiveness, thanks both to its stable costs and to the substantial economic benefits that result from investment in this high technology industry.*

### **An Energy Union**

FORATOM welcomes the initiatives by the European Commission (EC) in the areas of a long-term policy for energy and climate. We especially appreciate the developing idea of an EU 'Energy Union' and the efforts to highlight the crucial role energy will play in helping underpin the wider economic strategy for Europe. There is indeed a pressing need to take action that will create jobs, growth and lift industrial competitiveness, while continuously keeping in mind the nature of climate change and its consequences.

FORATOM believes that EU energy policy should be built upon the three pillars of security of supply, competitiveness and sustainability. The term 'Energy Union' should serve as an umbrella that includes recent and future reforms in the areas of climate and energy, such as for example 2030 policy, the Emissions Trading System (ETS) reform and the completion of the internal electricity market. Importantly, implementation of reforms to the ETS should be brought forward enabling it to deliver an effective and robust carbon price sooner rather than later.

However, 'Energy Union' should also mean that new drivers are developed which ensure that Member States energy strategies and goals contribute to the common Energy Union goals. While acknowledging that such a Union should respect the energy choices of Member States, in line with the Lisbon Treaty, it should promote a balanced energy mix that recognises the crucial role of base-load electricity supply, the need for flexible generation and the impact of increasing contribution from intermittent energy technologies.

Security of energy supply is enhanced by diversity, and must also avoid over-reliance upon intermittent sources. As far as electricity is concerned, we believe that enhancing of security of power supply whilst delivering stable and affordable prices cannot be realized without in-depth changes in the electricity markets in the EU and stronger and more effective interconnections. It is indeed clear that the current market arrangements do not deliver the necessary signals for long-term investment in low carbon technologies. They should reflect the real cost of delivering each type of (low carbon) electricity to the consumer, *i.e.* the full system cost, including transmission, distribution and back-up when necessary.

Linked to this, low carbon technologies must be allowed to compete fairly on price without any specific subsidies, taxes or levies, thus achieving emissions reductions in the most cost-effective way and promoting industrial competitiveness. In order to accommodate for the long-term and capital intensive nature of low carbon generation – including nuclear – an effective investment environment for all such technologies must be enabled, which includes innovative financing mechanisms such as long-term contracts, contracts for difference, shared ownership/take-off schemes, or other viable market models.

In short, Member States, have to adhere to, and comply with, the common goals and targets set at the EU level. Nevertheless they decide on their own energy mix and guarantee regulatory stability. They should be given the possibility to choose their own path to reach the agreed targets.

## Security, Solidarity and Trust

*Security of energy supply* is enhanced by reducing dependence upon fossil fuels from external energy sources, and having a diverse energy mix. All things being equal, the less reliance on fossil fuels, the less vulnerable Member States and the EU are.

Nuclear power, which provides nearly 30% of EU's electricity supply, is a key contributor to the security of the overall generation system. While the EU is a significant importer of uranium, to all intents and purposes nuclear can be regarded as an indigenous source of electricity<sup>1</sup>. Indeed, nuclear fuel resources are available from a variety of countries, the majority of which are politically stable. In addition, as the quantity of uranium necessary to produce a given amount of electricity is extremely low compared to other sources of energy, nuclear operators are able to store sufficient uranium fuel assemblies on-site for years of operation. Finally the cost of uranium is marginal in the total cost of the electricity produced by a nuclear reactor. Furthermore, the European industry is a world leader in reactor and fuel cycle activities.

The public acceptability of energy technologies is important. This is not only a particular feature of nuclear power. For a variety of reasons, fossil fuels, renewables, nuclear and carbon capture and storage (CCS) are all subject to widely differing levels of support across the EU. However, it is paramount that the citizens of the EU have confidence in the regulatory structures that apply to the use of energy technologies. In this respect, the nuclear industry prioritises the safe operation of its facilities, and looks to the Commission to provide authoritative information about the status of nuclear safety within the EU.

Although greater interconnection between markets can drive efficiency in the utilisation of assets, we must keep in mind that sufficient generating capacity including base-load must exist to provide secure supplies of energy to the customers. Therefore FORATOM calls upon the European Commission to publish a Nuclear Illustrative Programme ("PINIC") in 2015. This is necessary to build a complete picture of how the EC intends to ensure secure energy supplies and it will help speaking with a common voice in negotiations with third country suppliers (particularly for gas).

## Internal Energy Market

The development of a single EU energy market has proven to be a challenge that has yet to be achieved. It has now become evident that energy markets alone do not favour long term investment and cannot deliver the objectives of secure, affordable and low carbon energy required to enable a competitive and sustainable EU economy.

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<sup>1</sup> IEA World Energy Outlook 2014 (page 417).

Nuclear power plants are contributing to the internal electricity market with steady supply of baseload low marginal cost electricity across MS frontiers. However, the European Commission recently acknowledged that there were several genuine market failures in concluding that UK Government interventions for the Hinkley Point C project are compatible with EU state aid rules. Hence the UK electricity market reform (EMR) is a good example of a Member State action that promotes the robust framework needed for investment in long term low carbon energy generation, including nuclear, renewables and, if proven to work at scale, CCS

EU-based institutions, including the European Investment Bank and the EC's new Investment Plan, have a crucial role to play in facilitating investment in particular in low carbon capital intensive projects. But most importantly the EURATOM Treaty calls on the European Commission to stimulate action to facilitate coordinated development of investment in the nuclear field. The EC is expected to prepare and publish an Illustrative programme (PINC) indicating nuclear energy production targets and all the types of investment required for their attainment. FORATOM encourages the European Commission to proceed with the publication of such a PINC.

Competition in the retail market must be encouraged across the EU, recognising that healthy competition requires financially strong supply companies that are able to access sources of generation to meet the needs of their customers.

### **Moderation of Demand**

FORATOM would like the European Commission to be giving priority to creating a level playing-field across the EU. On the one hand this would encourage the adoption of smart technology to empower customers to manage their energy use more efficiently. On the other hand it should be remembered that providing electricity at times of peak demand requires 'dispatchable' technologies, so over time there should also be incentives to demand management. The goal must be to encourage 'peak shaving' which would be possible through demand management and energy efficiency. As the demand profile becomes flatter, the contribution of baseload nuclear power will be even more valuable.

### **Decarbonisation of the Energy Mix**

Environmentally, nuclear power is a significant means of limiting GHG emissions in the power generation sector. Nuclear energy produces virtually no GHG emissions at the point of generation<sup>2</sup>. There are no credible scenarios whereby the EU can meet its long term objectives in terms of carbon dioxide emission reduction for 2050 without continuing to make use of nuclear power. The European Commission's Energy Roadmap 2050 adopted in December 2011 acknowledged the positive contributions nuclear energy makes to the

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<sup>2</sup> In the EU as whole, nuclear energy helps avoid 436 million tonnes of CO<sub>2eq</sub> per year (based on EUROSTAT data for 2011 energy mix).

energy transformation process. Nuclear is declared as being one of the four main options (along with greater efficiency, renewable energy sources and CCS) for cutting energy-related CO<sub>2</sub> emissions in the future. In terms of climate change avoidance, it is not effective to replace nuclear with other forms of low carbon energy, such as renewables, especially if the back-up for renewables leads to higher CO<sub>2</sub> emissions.

In addition, the Emissions Trading Scheme (ETS) has failed to fix an adequate uniform carbon price or provide an incentive for investment in low carbon generation and the price is not sufficiently high to discourage unabated fossil fuel generation. Until such time as it provides an effective stimulus for investments in low carbon electricity generation, MS will set their own national carbon floor prices or use other means to encourage investment.

The proposed Market Stability Reserve (MSR) will potentially strengthen the ETS, though bringing its entry in to force forward to 2017 would provide a greater incentive and possibly greater certainty to low carbon energy investments than postponing its implementation to the early 2020s.

## **Research and Innovation**

Research and innovation are essential for long-term sustainability of the economy. The EU can claim some of the best nuclear innovation and research in the world. Current nuclear power research programmes are supporting a broad spectrum of scientific areas and new technologies (e.g. materials sciences and processes), thus contributing to maintain Europe's leadership.

Research is required to develop the next generation of fission reactors, as well as small modular reactors. In addition, research into techniques for decommissioning of nuclear facilities, waste minimization, management and disposal is increasingly important.

European R&D in nuclear energy on operating and currently constructed reactors should also be promoted in the EU research programmes. EU fission research funding should be kept at a level commensurate with the potential of nuclear to make a major sustainable contribution to future low carbon energy supplies and keep Europe's leadership in nuclear industry, bearing in mind that nuclear encourages excellence in a wide range of high technology fields (IT, control systems, metallurgy, remote operations, medical applications, etc.) that can also serve in other EU industries.

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