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Europe Needs To Recognise Flexibility Of Nuclear, Says Foratom

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Flexibility, the new mantra of European nuclear industry…

7 May 2018 - European Union energy policy should take account of the flexibility nuclear power could provide alongside intermittent renewables for the bloc's electricity system, the Brussels-based nuclear industry group Foratom has said.

In a position paper Foratom said the flexible operation of the EU's nuclear fleet – its ability to follow the peaks and troughs of electricity demand – could be used alongside variable renewable energy sources to ensure security of energy supply and lower CO2 emissions.

Foratom said the challenge for renewables is their intermittent nature, dependent on weather conditions. They therefore need to be combined with other sources of low-carbon energy such as nuclear.

According to Foratom, a general misconception is that nuclear can only provide baseload power, while in reality it can also be operated in a flexible manner.

Andrei Goicea, an executive manager at Foratom said : "We would like policymakers to be aware of the fact that nuclear power can be flexible. This aspect of nuclear is often ignored, yet it is not ignored when it comes to fossil fuels, which are generally considered to be the ones guaranteeing the grid's flexibility ".

Foratom said EU energy policy needs to ensure there are appropriate mechanisms to reward flexible operation in a system containing an increasing proportion of intermittent renewables.

“When it comes to nuclear flexibility, two elements need to be taken into consideration : the regulatory framework, which can vary from one member state to another, and the market environment,” Foratom said.

The EU needs a well-functioning electricity market that allows for long-term investments in low-carbon energy sources. It needs a functioning emissions trading system (ETS) which delivers a long-term and predictable carbon price, Foratom said.

“Baseload operation of nuclear units is considered to be most economically advantageous, so switching to flexible operation for load-following needs to be compensated by an appropriate market mechanism”, Mr Goicea said.

“It’s all about the economics of reactor operation”, he said. “Nuclear operators will expect to be rewarded for the value and resilience they provide to a nation’s grid and energy policy”.

Nuclear power plants are commonly operated in a “baseload” mode at maximum rated capacity whenever online. However, nuclear plants are technically capable of flexible operation, including changing power output over time – known as ramping or load following – and providing frequency regulation and operating reserves.

According to a recent report published in Science Direct, flexibility is becoming more valuable as many regions transition to low-carbon power systems with higher shares of variable renewable energy sources such as wind or solar power.

The report concluded that flexible nuclear operation lowers power system operating costs, increases reactor owner revenues, and substantially reduces curtailment of renewables.