NUCLEAR ENERGY

Nuclear energy is a low-carbon alternative to fossil fuels and accounts for almost 26% of the electricity produced in the EU. However, in the aftermath of the 1986 Chernobyl disaster and the 2011 catastrophe in Fukushima, nuclear energy has become highly controversial. While Member States choose whether to include nuclear power in their energy mix, EU legislation aims at improving the safety standards of nuclear power stations and ensuring that nuclear waste is safely handled and disposed of.

LEGAL BASIS

Treaty establishing the European Atomic Energy Community (Euratom Treaty), Articles 40-52 (investment, joint undertakings and supplies) and 92-99 (nuclear common market).

OBJECTIVES

To tackle the general shortage of 'conventional' energy in the 1950s, the six founding Member States looked to nuclear energy as a means of achieving energy independence. Since the costs of investing in nuclear energy could not be met by individual countries, the founding Member States joined together to form the European Atomic Energy Community.

ACHIEVEMENTS

A. Nuclear safety

Nuclear safety deals with the safe operation of nuclear installations, radiation protection and the application of safeguards for nuclear materials in non-EU countries. The EU aims to promote an effective nuclear safety culture, including by implementing the highest nuclear safety and radiation standards. Member States are required to establish national frameworks on nuclear safety requirements, the licencing of nuclear power stations, supervision and enforcement. Encouraging the responsible and safe management of spent fuel and radioactive waste, as well as the decommissioning and remediation of former nuclear sites and installations, is also an EU priority.

1. Legislative work

a. The Euratom Treaty

The Basic Safety Standards Directive 2013/59/Euratom establishes uniform basic safety standards for the protection of the health of workers, members of the public and patients. It lays down precise parameters and leaves little discretionary margin. The

directive applies under normal conditions, but it also refers to planned and emergency exposure situations. The requirements for emergency preparedness and responses were strengthened to take into account the lessons learnt from the 2011 Fukushima nuclear accident.

b. The Nuclear Safety Directive

Following the Fukushima nuclear accident, the Commission carried out a comprehensive risk and safety assessment of all EU nuclear power stations to assess the safety and robustness of nuclear installations in the event of extreme natural events. The Commission gave an overall positive assessment of current EU safety standards, but highlighted the need for further upgrades in order to ensure better consistency among Member States and to catch up with international best practices (COM(2012)0571). Together with the European Nuclear Safety Regulators Group, the Commission drew up peer-reviewed national action plans to schedule physical upgrades of EU reactors.

In 2014, EU-wide safety rules for nuclear installations were updated (Directive 2014/87/Euratom). In February 2015, the Commission proposed that the information requirements laid down in Articles 41 and 44 of the Euratom Treaty be reviewed to align them with the new policy developments.

In 2018, the Commission proposed a Council regulation establishing a European Instrument for International Nuclear Safety Cooperation (Council Regulation (Euratom) 2021/948), replacing the previous Instrument for Nuclear Safety Cooperation and complementing the Neighbourhood, Development and International Cooperation Instrument on the basis of the Euratom Treaty (COM(2018)0462).

In June 2021, the new European Instrument for International Nuclear Safety Cooperation entered into force with a financial envelope of EUR 300 million for 2021-2027.

2. Radiation protection

Exposure to ionising radiation represents a significant danger to human health and for the environment. Council Directive 2013/59/Euratom of December 2013 laid down basic safety standards for protection against the dangers arising from exposure to ionising radiation. This simplified EU legislation by replacing five directives, and introduced binding requirements for protection against indoor radon, the use of building materials and an environmental impact assessment of discharges of radioactive effluents from nuclear installations. In addition, Council Directive 2013/51/Euratom focused on monitoring radioactive substances in water intended for human consumption.

Several regulations (including Commission Implementing Regulation (EU) 2020/1158) have laid down conditions governing imports of agricultural products originating in non-EU countries following the accident at the Chernobyl nuclear power station. Council Regulation (Euratom) 2016/52 lays down maximum permitted levels of radioactive contamination of food and feed following a nuclear accident or any other radiological emergency.

Post-Brexit relations on nuclear energy fall under the Euratom-UK Agreement, which provides for a stable framework to continue cooperation and trade with the UK in this field.

3. Transport of radioactive substances and waste

A system of prior authorisation for shipments of radioactive waste was established in the EU in 1992 and amended significantly by Council Directive 2006/117/Euratom on the supervision and control of shipments of radioactive waste and spent fuel, of November 2006. According to Article 20, Member States have to report every three years to the Commission on the implementation of the directive. Rules to maintain control of shipments of radioactive sources between EU countries were established in Council Regulation (Euratom) No 1493/93.

4. Waste management

A legal framework for waste management in the EU was created in 2011 with Council Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste. It provides for close monitoring of national programmes for the construction and management of final repositories, and legally binding safety standards. Member States published their first national programmes in 2015 and must submit national reports every three years on the implementation of the directive.

5. Decommissioning

The decommissioning of a nuclear facility involves activities ranging from the shutdown and removal of nuclear material to site restoration and the complete elimination of radiological hazards, and falls ultimately under the responsibility of the Member States. In June 2018, the Commission adopted two proposals for a Council regulation (COM/2018/0466 and COM/2018/0467) establishing dedicated financial programmes for the decommissioning of nuclear facilities and the management of radioactive waste pertaining to the nuclear power stations in Bulgaria (Kozloduy), Slovakia (Bohunice) and Lithuania (Ignalina), including nuclear research installations on four sites of the Commission's Joint Research Centre. The proposed budget allocation for 2021-2027 was set at:

— EUR 466 million, with a maximum EU co-financing rate applicable from 2021-2027 of no higher than 50% for the Kozloduy programme and for the Bohunice programme;

— EUR 552 million, with a maximum EU co-financing rate applicable from 2021-2027 of 86% for the Ignalina programme.

Council Regulations (Euratom) 2021/100 and (EU) 2021/101 were adopted on 25 January 2021. They entered into force on 21 February 2021 and have been in application since 1 January 2021.

6. Safeguarding nuclear materials

A number of regulations have been adopted and amended to establish a system of safeguards ensuring that nuclear materials are used only for the purposes declared by their users and that international obligations are complied with, e.g. Commission

Regulation (Euratom) No 302/2005. These safeguards cover the entire nuclear fuel cycle, from the extraction of nuclear materials in the Member States, to their importation from non-EU countries and exportation outside the EU. The Commission is responsible for checking civil nuclear material within the EU.

B. Nuclear research, training activities and information

Nuclear research in the EU is funded through multiannual framework programmes. The Euratom programme for nuclear research and training activities complements, but remains separate from, Horizon 2020, the EU framework programme for research and innovation. The amount dedicated to the Euratom programme for 2021-2025 is EUR 1.38 billion, divided among three specific programmes: indirect actions in the field of fusion energy research (EUR 583 million), nuclear fission and radiation protection (EUR 266 million) and direct actions undertaken by the Commission's Joint Research Centre (EUR 532 million).

ROLE OF THE EUROPEAN PARLIAMENT

Parliament's role in the decision-making process under the Euratom Treaty is limited since it only has consultation powers. Nevertheless, it has consistently put emphasis on the need to clarify the distribution of responsibilities between EU institutions and Member States and strengthen the EU framework on various aspects of nuclear installations, as well as on the importance of improving safety and environmental protection requirements.

In its resolution of July 2011 on energy, infrastructure priorities for 2020 and beyond, Parliament supported the Commission's decision to introduce 'stress tests' for nuclear power stations in the EU. Its supplementary resolution of March 2013, pointed out the limits of the stress tests carried out by the Commission in 2012 and asked for the inclusion of additional criteria, notably in relation to material deterioration, human error and flaws in reactor vessels. Parliament pushed for full implementation of the safety improvements.

In its first reading position of June 2011 on the proposed Council directive on the management of spent fuel and radioactive waste, Parliament supported the Commission's proposal for a complete ban on the export of radioactive waste, while the Council was in favour of allowing exports under very strict conditions.

On 14 March 2013, in the aftermath of the Fukushima disaster, in its resolution on risk and safety assessments of nuclear power plants in the European Union (stress tests), Parliament supported the Commission's decision to review European nuclear installations with stress tests, but criticised their limited scope and called for additional criteria to be included in the future.

In its first reading position of October 2013 on the proposal for a Council directive updating the basic safety standards for protection against ionising radiation, Parliament again called for a change of legal basis. It extended the scope of the directive to any planned, existing, accidental or emergency radiation exposure, made stricter the dosage limits for which exposure is allowed and strengthened penalties and reparation for damages. It also improved the system for informing the public.

On 21 April 2021, the Commission made a number of amendments to the EU Taxonomy Regulation (Regulation (EU) 2020/852), which entered into force in July 2020, signalling the inclusion of nuclear energy in the taxonomy. The rules, spelled out in a Taxonomy Climate Delegated Act (Commission Delegated Regulation (EU) 2021/2139), set out detailed green finance criteria, but left out gas and nuclear power for a separate decision to be taken at a later stage by Parliament.

On 1 March 2022, in its resolution on the Russian aggression against Ukraine, Parliament categorically rejected the Russian 'rhetoric hinting at the possible resort to weapons of mass destruction', reminding Russia of its international obligations and warning of the dangers of a nuclear escalation of the conflict.

In its resolution of 7 April 2022 on the conclusions of the European Council meeting of 24-25 March 2022, including the latest developments of the war against Ukraine and the EU sanctions against Russia and their implementation, Parliament called for additional punitive measures, including 'an immediate full embargo on Russian imports of oil, coal, nuclear fuel and gas', accompanied by a plan to ensure the EU's security of energy supply, as well as a strategy to 'roll back sanctions in the event that Russia takes steps towards restoring Ukraine's independence [...]'. Parliament also condemned the taking over by Russian forces of active or decomposed nuclear facilities and sites in the territory of Ukraine.

On 11 July 2022, after having adopted an objection to the Taxonomy Complementary Climate Delegated Act, which included, under strict conditions, specific nuclear and gas energy activities in the list of economic activities covered by the EU taxonomy, Parliament decided not to veto the Commission's proposal.

For more information on this topic, please see the website of the Committee on Industry, Research and Energy.

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