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ADDENDUM TO "I/A" ITEM NOTE

from :	General Secretariat of the Council
to :	Coreper/Council
Subject :	Report on the implementation of the obligations under the Convention on Nuclear Safety - 6th Review meeting of the Contracting Parties

Delegations will find attached a pre-copy of the above report[*].

[*] This report is in the process of being formally adopted by the Commission.

EUROPEAN ATOMIC ENERGY COMMUNITY
REPORT
On the implementation of the obligations under the Convention on Nuclear Safety
6th Review meeting of the Contracting Parties

Executive Summary

Following the European Commission's (Commission) Communication "Europe 2020: a strategy for smart, sustainable and inclusive growth"[1] and the discussions held in the Council on the 25-26 March 2010, the European Council reached an agreement "Towards a new Energy Strategy for Europe 2011-2020", on which the Council adopted Conclusions on 31 May 2010[2]. European Union (EU) energy policy is playing a key role to promote a more energy and resource efficient, sustainable, low carbon, secure and competitive Europe in the framework of the Europe 2020 new strategy for jobs and growth. In this context, as one of seven flagship initiatives the Commission put forward the energy-relevant "Resource efficient Europe" initiative, to help decouple economic growth from the use of resources, support the shift towards a low carbon economy, increase the use of renewable energy sources, modernise our transport sector and promote energy efficiency.

Nuclear energy is a main component of the low-carbon electricity consumed in the EU. On 15 December 2011, the Commission adopted the Communication "Energy Roadmap 2050"[3]. The EU is committed to reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group. In the Energy Roadmap 2050, the Commission explores the challenges posed by delivering the EU's decarbonisation objective, while at the same time ensuring security of energy supply and competitiveness. The Communication highlights that nuclear energy will be needed to provide a significant contribution in the energy transformation process in those Member States where it is pursued, remaining a key source of low carbon electricity generation. The Energy Roadmap 2050 is the basis for developing a long-term European framework together with all stakeholders.

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1 Communication from the Commission of 3.3.2010, Europe 2020 – a strategy for smart, sustainable and inclusive growth, COM (2010) 2020 final, http://ec.europa.eu/eu2020/index_en.htm

2 Council conclusions "Towards a new Energy Strategy for Europe 2011-2020" 3017th TRANSPORT, TELECOMMUNICATIONS AND ENERGY Council meeting Brussels, 31 May 2010, http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/trans/114727.pdf

3 Communication "Energy Roadmap 2050" (COM/2011/885)

On 27 March 2013, the Commission adopted a Green Paper on "A 2030 framework for climate and energy policies"[4]. This document launched a public consultation which lasted until July 2013, allowing Member States, other EU institutions and stakeholders to express their views; for example on the type, nature and level of potential climate and energy targets for 2030, but also on other important aspects of EU energy policy in a 2030 perspective including nuclear.

Around 30% of the electricity in the EU comes today from nuclear, which is one of the largest low-carbon sources in Europe. Extrapolation from the scenario of the Roadmap 2050 leading to 20% nuclear electricity for the mid-century shows that around 100 new nuclear power plants would have to be built for then, after a period of long term operation of the existing nuclear fleet. While it is for each Member State to decide whether to include nuclear energy in its own energy mix, the role of the EU should be to maintain and develop further in conformity with the law of the EU and the European Atomic Energy Community (Euratom) the most advanced framework for nuclear energy for meeting the highest standards of safety.

The accident at the Fukushima Daiichi nuclear power plant (NPP) in 2011 resulted in significant environmental, economic and social damage, and raised concerns about possible health effects in the affected population in Japan. Although triggered by an earthquake and tsunami of an immense magnitude, investigations of the causes of the accident reveal a range of foreseeable factors which combined to produce a catastrophic outcome. After Three Mile Island and Chernobyl nuclear accidents, Fukushima nuclear accident once again raised concerns on the safety of nuclear power; and particularly so at a time when the use of nuclear power is being debated as a possible option to meet global energy demands in a sustainable manner.

The Fukushima nuclear accident renewed attention on the paramount importance of ensuring the most robust levels of nuclear safety. The EU response to this event was immediate.

Based upon a mandate from the European Council at its meeting of 24-25 March 2011[5], the Commission, together with the European Nuclear Safety Regulators Group (ENSREG), launched EU-wide comprehensive risk & safety assessments of nuclear power plants ('Stress Tests'). The Stress Tests were defined as a targeted reassessment of the safety margins of NPPs in the light of the events in Fukushima related to extreme natural events challenging the

[4] Green Paper "A 2030 framework for climate and energy policies" (COM(2013) 169)
[5] European Council Conclusions EUCO 10/1/11

plants safety functions. All fourteen EU Member States that operate nuclear power plants[6], plus Lithuania[7], participated in these assessments. Switzerland, Ukraine and Croatia participated fully in the EU Stress Tests and the peer review process, while other neighbouring countries (e.g. Turkey, Belarus and Armenia) that agreed to use the same methodology, are working within different timetables. Stress Tests started in 2011 by self-assessments carried out by nuclear operators and the preparation of national reports by national regulators. Preliminary findings were presented in a Commission Communication on an Interim Stress Tests Report[8] in November 2011 and an extensive EU-wide peer review process was carried out from January to April 2012. An overview report was produced by the ENSREG Peer Review Board[9] and endorsed by ENSREG. In addition, ENSREG also agreed on an Action Plan[10] to follow up the implementation of the peer review recommendations. In October 2012, the Commission issued a Communication on the Final Stress Tests Report[11]. Currently, in line with the requirements of the ENSREG Action Plan, National Action Plans[12] associated with post-Fukushima lessons learned and Stress Test peer review recommendations have been prepared and reviewed in terms of contents and status of implementation in the framework of a Workshop in April 2013. The Summary Report of the Workshop was presented at the 2013 Second ENSREG Conference on Nuclear Safety in Europe[13]. Furthermore in the process of ensuring a proper follow-up of the Stress Tests, the Commission will elaborate, in close cooperation with ENSREG, a consolidated report on the status of the implementation of the Stress Tests recommendations, envisaged to be issued in June 2014 and transmitted to the European Council.

Neither the EU nor Euratom possesses nuclear installations[14] as defined by the Convention. All nuclear power plants on the territories of the EU Member States are regulated by the national regulatory authorities in accordance with their respective national laws and in conformity with the legal framework of the Community.

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6 Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Hungary, Netherlands, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom

7 The Ignalina NPP is being decommissioned

8 COM 784 final

9 Peer review Report – Stress Tests performed on European nuclear power plants www.ensreg.eu

10 ENSREG Action Plan regarding the follow-up of the peer-review of the stress tests performed on European nuclear power plants

11 COM (2012) 571, 04.10.2012

12 17 National Action Plans are available on the ENSREG website www.ensreg.eu

13 http://www.ensreg.eu/ensreg-conferences

14 The only nuclear reactor owned by Euratom in operation is the High Flux Reactor (HFR) located at Commissions Joint Research Centre in Petten, the Netherlands. It is operated by the Nuclear Consultancy and Research Group (NRG) and it is regulated by the Dutch regulatory authority. For these reasons the present Euratom report entails no information on this reactor.

On 1 December 2009 the Treaty of Lisbon[15] entered into force and amended the existing EU Treaty, the Treaty establishing the European Community and the Euratom Treaty[16]. While the amendments concerned mainly the institutional and financial provisions of the Euratom Treaty, the EU acquired its own legal personality. Euratom remains as a separate legal entity, which however is strongly interlinked with the EU, as its membership, finances and institutions are fully integrated with those of the EU. Indeed, Euratom and the EU share the same Member States and institutions.

Euratom acceded to the Convention in 1999, as a regional organisation, and the Convention entered into force for Euratom on 30 April 2000; since then Euratom actively participates in all review meetings.

The following states are members of the EU, and thus of Euratom: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK. All 28 EU Member States have signed and ratified the Convention on Nuclear Safety and are now Contracting Parties.

Euratom possesses competences, shared with its Member States in the fields of legislative and regulatory framework (Article 7), assessment and verification of safety (Article 14), radiation protection (Article 15), emergency preparedness (Article 16 Para 1,2 and 3), siting of nuclear installations (Article 17), design, construction and operation of nuclear installations (Article 18 and 19). In view of the Council Directive on Nuclear Safety, Euratom reports in addition – on a voluntary basis – under Articles 8 to 12.

Since the Member States are responsible for implementing EU legislation, the Euratom report only informs about the current legal framework, European initiatives and programmes, but not on the practical implementation in the 28 Member States. This information is to be found in the respective national reports.

The present Euratom report is an alone-standing report, based on the last report for the 5th Review Meeting and the 2nd Extraordinary Review meeting. It has been revised, updated and restructured to be in line with the revised Guidelines regarding National Reports. New information is in ***bold italics***.

Euratom has been active in the field of nuclear safety for over 50 years. The commitment of Euratom and its Member States to a high level of nuclear safety is reflected, in particular, in the existing Euratom legislative framework as well as in the relevant Council Resolutions and the Conclusions of the European Council. Nuclear safety is and remains an absolute priority of the EU.

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15 Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community, signed at Lisbon, 13 December 2007 (2007/C 306/01), OJ 306, 17.12.2007, page 1

16 Consolidated version of the Treaty establishing the European Atomic Energy Community, OJ C 84 of 30.03.2010, p.1

Following Euratom commitments in the last review meeting, the Community continued to engage in a wide-ranging process to develop instruments and initiate projects to more effectively promote enhancement of nuclear safety across the EU. The Commission has worked with the support of expert groups for more than 35 years and has launched many studies and initiatives in the field of radiation protection and nuclear safety.

In 2007, following the Council's conclusions[17], the Commission established a High Level Group on Nuclear Safety and Waste Management[18], which replaced all former expert groups in these areas. The Group was later renamed as European Nuclear Safety Regulators Group (ENSREG) and brings together the senior representatives from the national nuclear regulatory or safety authorities, and representatives in charge of radioactive waste management, of all EU Member States. Among other activities, the group promoted a better use of the Convention of Nuclear Safety, increased transparency in the nuclear field, international peer reviews carried out against IAEA safety standards and self-assessments.

In 2007, the EU Summit[19] endorsed the Commission proposal to organise a broad discussion among all relevant stakeholders on the opportunities and risks of nuclear energy. Since then the European Nuclear Energy Forum (ENEF) has been providing a unique discussion platform on opportunities and risks of nuclear energy, in particular competitiveness, safety, nuclear waste policies, training and education as well as in the area of transparency. More than 250 representatives of the governments of all 28 EU Member States, European institutions, nuclear industry, consumers and the civil society meet once a year, alternately in Prague and Bratislava. The last ENEF Plenary of May 2013 recognised the need to look to the energy paradigm from a global system perspective and insisted on striking the right balance between competitiveness, security of supply and sustainability.

In its landmark ruling in Case 29/99[20], the Court of Justice of the European Union stated “it is not appropriate, in order to define the Community’s competencies, to draw an artificial distinction between the protection of the health of the general public and the safety of sources of ionising radiation.” Since then the initial proposal for a nuclear safety directive had been discussed, revised and re-discussed. In 2008, following widespread consultations the Commission presented the revised proposal for a Directive setting up a Community framework for nuclear safety. Both ENEF and ENSREG provided a valuable contribution to the preparation of the Council Directive on Nuclear Safety.

On 25 June 2009, for the first time since the establishment of the European Community in 1957 – unanimously and with the full support of all the EU Member States, following widespread support from the European Parliament – the Council adopted EU-wide, binding

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17 Council Conclusions on Nuclear Safety and Safe Management of Spent Nuclear Fuel and Radioactive Waste, 2798th ECONOMIC and FINANCIAL AFFAIRS Council meeting, Brussels 8 May 2007.

18 Commission Decision of 17 July 2007 establishing a "European High Level Group for Nuclear Safety and Waste Management (High Level Group), OJ L 195/44 of 27.07.2007

19 Council of the European Union Document No. 7224/1/07 REV 1 of 2 May 2007

20 Judgement of 10 December 2002 in the Case C-29/99 (Commission of the European Communities v Council of the European Union)

requirements on nuclear safety. The 'Nuclear Safety Directive'[21] made a number of the safety requirements of the Convention on Nuclear Safety as well as of the Safety Fundamentals established by the IAEA legally binding to its Member States. It creates a solid and flexible legal framework that defines basic obligations and principles governing nuclear safety throughout the EU, which becomes the first major regional nuclear actor to give binding legal force to these leading international nuclear safety instruments.

The Nuclear Safety Directive supplements the basic standards as regards the nuclear safety of nuclear installations and is without prejudice to the Basic Safety Standards Directive. Its goal is to maintain and promote the continuous improvement of nuclear safety and to ensure that a high level of nuclear safety is provided by EU Member States to protect workers and the general public against dangers arising from nuclear installations. It does not prevent Member States from taking more stringent safety measures in the subject-matter covered by this Directive. The Nuclear Safety Directive aims to reinforce the role and the independence of the competent national regulatory authorities by building on their competencies. It requires Member States to establish and maintain a national legislative, regulatory and organisational framework governing the safety of nuclear installations and recognises the prime responsibility of licence holders for nuclear safety, under the supervision of the competent authorities. Licence holders are required to undertake systematic and verifiable safety assessments, including the verification of "defence-in-depth" measures.

The Directive obliges Member States to ensure the establishment and implementation of management systems by the license holder which give due priority to nuclear safety and are regularly verified by the competent regulatory authority. It ensures that the competent regulatory authority is given the legal powers and human and financial resources necessary to fulfil its obligations in connection with the national framework with due priority to safety.

Nuclear safety assessments carried out in installations based in the EU Member States are a responsibility of the Member State where the installation is based. The Nuclear Safety Directive requires regular nuclear safety supervision, carried out by the regulatory authority and the licence holder throughout the lifetime of nuclear installations.

However, in the aftermath of the Fukushima nuclear accident, the Commission received a mandate from the European Council in March 2011 "to review the existing legal and regulatory framework for the safety of nuclear installations" and propose any improvements that may be necessary. On this basis, a draft proposal for a Directive amending the Nuclear Safety Directive[22] has been developed, benefiting from the input and expertise of the Euratom Treaty Article 31 Group of scientific experts, as well as an extensive consultation process with the high-level representatives of the national nuclear regulatory authorities reunited in ENSREG. This draft proposal has been adopted on 13 June 2013 by the Commission in order

[21] Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, OJ L 172, 2.7.2009

[22] COM(2013)343 available at http://ec.europa.eu/energy/nuclear/safety/safety_en.htm

to obtain the opinion of the European Economic and Social Committee before being submitted to the European Parliament for consultation and to the Council for final adoption.

On 19 July 2011, the Council adopted the "Radioactive waste and spent fuel management Directive"[23], proposed by the Commission on 3 November 2010. The Directive, which came into force on 22 August 2011, obliges Member States to establish a national legislative, regulatory and organizational framework covering all aspects of the management of spent fuel and radioactive waste from generation to final disposal. Member states are required to transpose the directive into their national legislation and inform the Commission of the relevant provisions before 23 August 2013.

Within the national framework Member States must prepare a national programme. They also need to define a national policy together with plans for the implementation of this policy for the responsible and safe management of spent fuel and radioactive waste, including where appropriate plans for construction of national disposal facilities. National programmes must be notified to the Commission not later than 23 August 2015. The Commission may request further information and even request changes where appropriate.

In the course of the last 50 years a substantial corpus of Euratom legislation has been adopted and updated to protect the health of workers and of the general public. The so-called "basic safety standards" are completed by a set of legal instruments of different binding nature, covering a wide range of aspects including nuclear safety.

The Euratom Treaty requires the establishment of uniform safety standards to protect the health of the workers and of the general public and to ensure that they are applied. First established in 1959, the current safety standards, as set out in the "Basic Safety Standards" Directive 96/29/Euratom of 13 May 1996[24], are based on the 1990 Recommendation of the International Commission on Radiological Protection (ICRP).

Having discussed a revision and simplification of Community legislation in the area of radiation protection, the expert group established on the basis of Article 31 Euratom Treaty adopted its Opinion on the Revised Basic Safety Standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation on 24 February 2010. The proposal was further discussed within the European Economic and Social Committee (EESC). On 22 February 2012, the Committee adopted a favourable opinion and the proposal was submitted to the European Parliament for consultation and to the Council of EU for adoption. Negotiations are about to be concluded and the new Directive could be adopted before the end of 2013.

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[23] Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, OJ L199 of 2.8.2011, p. 48-55

[24] Council Directive 96/29/Euratom of 13 May 1996 laying down the basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation, L 159 of 29.06.1996 p. 1

In the area of emergency preparedness the basic safety standards were complemented with Council Directive 89/618/Euratom[25] on measures to be applied and steps to be taken in the event of a radiological emergency and Council Decision 87/600/Euratom[26] sets out arrangements for the early exchange of information between competent authorities in the event of a radiological emergency (ECURIE). The European Radiological Data Exchange Platform (EURDEP), developed and maintained for years by the EC Joint Research Centre (JRC) was selected by the IAEA to be the technical and principle basis for implementing the world-wide system for radiological monitoring, called IRMIS. Likewise, the Union Civil Protection Mechanism has continued to contribute to reinforcing Europe preparedness to nuclear incident.

Since the early 90's the EU used the support programmes PHARE and TACIS, in order to contribute, among other objectives, to an improvement of the nuclear safety situation in Central and Eastern European Countries and New Independent States. From 1 January 2007, assistance and cooperation under these instruments continued under, respectively, the Instrument for Pre-Accession Assistance (IPA) and the Instrument for Nuclear Safety Cooperation (INSC). As these instruments expire on 31 December 2013, a new INSC is under consideration for the period 2014-2020, to continue the promotion of an effective nuclear safety culture and implementation of the highest nuclear safety standards and radiation protection. The new INSC had its geographical scope expanded to include nuclear safety cooperation with the countries previously covered by IPA.

The 7th Euratom Framework Programme (FP) for nuclear research and training covered a five-year period from 2007to 2011[27]. In 2011, the 7th Euratom FP was extended by two years (called "Euratom FP7+2" from 2012 to 2013) to align with the 7 years of the 7th EU Framework Programme (covering all other aspects of research except nuclear). During the discussion on this extension, in a post-Fukushima context, on 28 June 2011 the Council invited the Commission to organise a symposium in 2013 involving a broad spectrum of stakeholders to contribute to the debate on the benefits and limitations of nuclear fission for a low carbon economy. The symposium has been prepared by an interdisciplinary study involving, inter alia, experts from the fields of energy, economics and social sciences[28].

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25 Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency, OJ L 357, 07.12.1989 P. 31

26 Council Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency, OJ L 371 of 30.12.1987, p. 76

27 Council Decision 2006/969/EC of 18 December 2006 concerning the Seventh Framework Programme of the European Atomic Energy Community (Euratom) or nuclear research and training activities (2007 to 2011), OJ L 391 of 30/12/2006, p. 19.

28 A "2012 Interdisciplinary Study" was launched in April 2012 with the title: "Benefits and limitations of nuclear fission for a low-carbon economy - Defining priorities for Euratom fission research and training (Horizon 2020)". As a follow-up event, the "2013 Symposium" was organised, with the title "Nuclear Fission Research for a low carbon economy" (co-organised by the European Commission and the European Economic and Social Committee, Brussels, 26-27 February 2013).
Website for "2013 Symposium" proceedings and accompanying report "Ethical framework for assessing research, production, and use of Energy" (Ethics Opinion n°27, dated 16/01/2013): http://www.eesc.europa.eu/?i=portal.en.events-and-activities-symposium-on-nuclear-fission-forum

The 7 th Euratom FP is composed of two specific programmes for nuclear research activities: one implemented through "direct actions", carried out by the Commission Joint Research Centre (JRC) and one implemented through "indirect actions", such as consortia of nuclear industrial and R&D organisations.

The JRC continued to contribute to the EU research needed for improved nuclear safety, security and waste management, and to provide transnational access for all EU Member States to its nuclear research infrastructures. As concerns nuclear reactor safety, during the reporting period, the JRC provided technical competence on the side of Commission for the implementation of the post-Fukushima "stress tests" at European NPPs. In addition, JRC research on nuclear power plant safety focussed on: NPPs operational events; long-term safe operation of existing plants; post irradiation examinations and modelling of fuels at high burn-up; properties and behaviour of nuclear fuel under normal , transient and accident conditions; generation of nuclear data and determination of structural and fuel material properties of sustainable advanced reactor designs.

Likewise, the JRC maintained and further improved the Commission tools for exchange of information in case of nuclear emergency and routine environmental monitoring.

In September 2007, the Sustainable Nuclear Energy Technology Platform (SNETP) was launched to facilitate increased coordination and cooperation of R&D activities in general. It brings together all the key nuclear industrial and research organisations in Europe around a common vision for nuclear systems and safety-related research and development (R&D). An updated Strategic Research and innovation Agenda was published by SNETP for the Dublin SET Plan (Strategic Energy Technology Plan) Conference of May 2013.

A new research program denominated "Euratom Horizon 2020" will replace FP7 and FP7+2 and will cover the period 2014-2018. This research programme, which also includes activities of JRC on nuclear matters, will notably cover R&D on nuclear safety, radioactive waste management and radiation protection.

Finally, as part of the existing programmes the Commission continued the European Community Urgent Radiological Information Exchange (ECURIE), the decommissioning support and the Euratom loans.

As already mentioned, Euratom does not possess or operate any nuclear installations as defined by the Convention. Yet, it is interesting to mention that the Euratom Nuclear Safety Directive defines nuclear installations in a broader context than the Convention, as it includes also research reactors and nuclear fuel cycle facilities (except for off-site waste management facilities).

The Euratom Treaty and its derived legislation is a lex specialis of EU law and prevails in case of EU conflicting rules. Legislation adopted under the Treaty on the Functioning of the EU (TFEU) and the Euratom Treaty is legally binding to Member States. It has primacy over national law and may be directly applicable within the legal systems of its Member States. To ensure a better understanding and easier peer review of Euratom the present report contains a

revised and updated introduction into the legal framework of the EU and Euratom, explaining the legal instruments, the legislative procedures, the joint institutional framework, the general and special obligations of Member States and the EU enforcement mechanisms.

There is no detailed Euratom legislation in force which defines criteria for the siting of nuclear installations. The siting of a nuclear installation necessarily includes an environmental impact assessment under the TFEU, taking into account radiation protection aspects, such as the demographic characteristics of the site.

The design, construction and operation of nuclear installations lie within the competence of the national authorities and there is no detailed Euratom legislation in force. However, following the mandatory submission of general data relating to any plan for the disposal of radioactive waste including discharges, the Commission gives an opinion, which contains also the results of the analysis of the possible radiological consequences of unplanned releases which may occur in the event of an accident. In addition, corresponding to the Convention on Nuclear Safety, the Nuclear Safety Directive illustrates the fundamental principle of "defence-in-depth" that implies the setting up of more than one protective measure for a given safety objective.

The report closes with a series of annexes, including the Declaration of Competences, the last Rapporteur's report and a list of Euratom legislative instruments.

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SECTION I
INTRODUCTION

1. BACKGROUND

European Union (EU) energy policy is playing a key role to promote a more energy and resource efficient, sustainable, low carbon, secure, and competitive Europe in the framework of the Europe 2020 new strategy for jobs and growth. In this context, as one of seven flagship initiatives the Commission put forward the energy-relevant "Resource efficient Europe" initiative, to help decouple economic growth from the use of resources, support the shift towards a low carbon economy, increase the use of renewable energy sources, modernise our transport sector and promote energy efficiency.

Nuclear energy is a main component of the low-carbon electricity consumed in the EU. On 15 December 2011, the Commission adopted the Communication "Energy Roadmap 2050"[29]. The EU is committed to reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group. In the Energy Roadmap 2050, the Commission explores the challenges posed by delivering the EU's decarbonisation objective while at the same time ensuring security of energy supply and competitiveness. The Communication highlights that the nuclear energy will be needed to provide a significant contribution in the energy transformation process in those Member States where it is pursued remaining a key source of low carbon electricity generation. The Energy Roadmap 2050 is the basis for developing a long-term European framework together with all stakeholders.

On 27 March 2013, the Commission adopted a Green Paper on "A 2030 framework for climate and energy policies"[30]. This document launched a public consultation lasting until July 2013, allowing Member States, other EU institutions and stakeholders to express their views; for example on the type, nature and level of potential climate and energy targets for 2030, but also on other important aspects of EU energy policy in a 2030 perspective including nuclear.

Nuclear energy currently generates close to 30% of all electricity in the EU and about two-thirds of its low-carbon electricity. The EU has 132 operating reactors, representing about one-third of the 437 operating nuclear power reactors in the world. Many of the EU NPPs were constructed already three to four decades ago, and are based on designs and safety provisions that were continuously updated since then.

Nuclear safety is of the utmost importance to the EU and its people. The effects of nuclear accidents do not stop at national borders and can entail potential harmful consequences for the health of workers and citizens but also wide-ranging economic implications. It is therefore essential for society and the economy to reduce the risk of a nuclear accident in an EU Member State by applying high nuclear safety standards and guaranteeing a high quality of regulatory oversight.

The accident that occurred at the Fukushima-Daiichi nuclear power plant in Japan, following the earthquake and tsunami of 11 March 2011, has renewed political attention to

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29 Communication "Energy Roadmap 2050" (COM/2011/885)

30 Green Paper "A 2030 framework for climate and energy policies" (COM(2013) 169)

the measures needed to minimise risk and guarantee the most robust levels of nuclear safety.

The Euratom Community response to the events at Fukushima was immediate. As requested by the European Council at its meeting of 24 – 25 March 2011[31], and together with national regulators[32] and the nuclear industry, the Commission launched a process to carry out EU-wide comprehensive risk and safety assessments of nuclear power plants ("stress tests"). The initiative was supported by the European Parliament. The European Council also asked the Commission to "review the existing legal and regulatory framework for the safety of nuclear installations" and to propose any improvements that may be necessary. Finally, given the potential cross-border implications of nuclear accidents, the European Council asked the Commission to invite EU neighbouring countries to take part in the stress test process.

2. OVERVIEW OF THE EURATOM NUCLEAR PROGRAMME

Euratom does not possess ***or operate any*** nuclear installations as defined in Article 2(1) of the Convention. Such nuclear installations exist only in the territories of the Member States of the European Atomic Energy Community, to which the Euratom Treaty applies.

Despite the Convention applies to nuclear power reactors only, so that research reactors are not formally covered by the Convention (see Art. 2), some Contracting Parties agreed to include them during the last CNS peer review conference. The only nuclear reactor owned by Euratom, which is still in operation, is the High Flux Reactor (hereinafter: HFR) of the Commissions Joint Research Centre (hereinafter referred to as: 'JRC')[33] in Petten, Netherlands. The HFR research reactor is formally owned by the JRC on behalf of the Euratom Community, but it is operated by Nuclear Consultancy and Research Group (NRG), a subsidiary of the Energy Research Centre of the Netherlands (ECN). It is regulated by the Dutch regulatory authority. For these reasons the present Euratom report entails no information on research reactors. In the past, the JRC was the owner of the license, but the IAEA recommended the transfer of the license to the operator NRG. For this reason the Dutch competent authority (Ministry of Housing, Spatial Planning and the Environment) transferred the operating licence from JRC to the Dutch entity NRG.

Since more than 25 years all research reactors of the JRC in Ispra, Italy, have been shutdown and will undergo decommissioning in the coming years. All nuclear fuel has been removed from their cores. For this reason they are excluded from the scope of application (see Art 2 of the Convention) and will be dealt with in the Euratom Report for the next review meeting

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31 EUCO 10/11 (paragraph 31)

32 National nuclear safety regulators meet in the European High Level Group on Nuclear Safety and Waste Management. This group was set up through the Commission Decision 2007/530/Euratom of 7 July 2007 (O.J. L 195/44, 27.7.2007, p. 44 – 46). The group later adopted the acronym ENSREG (European Nuclear Safety Regulators Group). More information is available at www.ensreg.eu

33 For more information on the JRC please see below Section III, Chapter 1.3 "The Joint Research Centre (JRC) of the Commission", p.38 and Chapter 3.1.2 "Specific Programme for research and training activities implemented by direct actions and carried out by the Commission's Joint Research Centre (JRC)", p. 46.

under the Joint Convention on the Safety of Spent Fuel and the Safety of Radioactive Waste Management.

For all these reasons the present Euratom report does not include any information about the HFR research reactor in Petten (NL). HFR is considered as a Dutch research reactor. This choice was facilitated by the decision of the Government of the Netherlands to include HFR on a voluntary basis in its 3rd national report to the CNS in 2005.

3. THE EUROPEAN ATOMIC ENERGY COMMUNITY'S (EURATOM) ACCESSION TO THE CONVENTION ON NUCLEAR SAFETY

The EU is not a federal state, nor is it an intergovernmental organization. The European Union is, in fact, unique because it constitutes a new legal order in international law. For the mutual social and economic benefit its Member States have set up common institutions to which they delegate some of their sovereignty so that decisions on specific matters of joint interest can be taken at European level.

Like the EU, the European Atomic Energy Community (hereinafter referred to as Euratom) is an international organization endowed with international legal personality. While membership and organization of Euratom is fully integrated with the European Union, Euratom is a separate legal entity bearing rights and duties on the international plane.

As a regional organisation as referred to in Article 30 (4) of the Convention on Nuclear Safety (hereinafter: the Convention) Euratom acceded to the Convention after the Decision of the Commission of 16 November 1999[34] on the basis of Article 101 of the Euratom Treaty following a Decision of the Council of 7 December 1998. The instruments of accession were deposited with the Director General of the International Atomic Energy Agency on 31 January 2000. Thus, for Euratom the Convention entered into force on 30 April 2000 in accordance with Article 31(2) of the Convention.

Euratom participated in the 2nd Review Meeting of the Contracting Parties (Vienna, 15-26 April 2002). This participation was restricted to those fields for which a Community competence had been declared and this fact was duly reflected in the Euratom Report presented by the Commission at that forum.[35] In December 2002, the Court of Justice of the European Communities annulled the third paragraph of the Declaration attached to the Council Decision of 7 December 1998 approving the accession of the European Atomic Energy Community to the Nuclear Safety Convention in so far, as it failed to state that the Community was competent in the fields covered by Articles 7, 14, 16(1) and (3) and 17 to 19 of the Convention.[36] On the basis of this Court ruling a second Declaration under Article

34 Commission Decision 1999/819/Euratom of 16 November 1999 concerning the accession to the 1994 Convention on Nuclear Safety by the European Atomic Energy Community (EURATOM), OJ L 318, 11.12.1999, p. 2

35 Report on the implementation of the obligations of the Convention on Nuclear Safety (COM(2001) 568 final.

36 Judgement of the European Court of Justice in Case C-29/99, European Court Reports (hereinafter: ECJ) 2002 Page I-11221, 102-103.

31(2) of the Convention was deposited with the Director General of the IAEA on 11th May 2004[37].

Euratom participated in the 3rd Review Meeting of the Contracting Parties (Vienna, 11-22 April 2005) and submitted a report according to Article 5 of the Convention, taking into account the revised Declaration of Competences under Article 30(4)iii of the Convention. Answers to the five questions on the report submitted by non-Member States were given within the deadline. On behalf of Euratom, the Commission presented the reports for peer review at the fourth and fifth review meeting of contracting parties to the Convention at the International Atomic Energy Agency in April 2008 and in April 2011 respectively. Likewise, to support the 2012 CNS Extraordinary Meeting, aimed to enhance safety through reviewing and sharing lessons learned and actions taken by Contracting Parties in response to events at Fukushima, a short and concise Report structured by topics was presented.

The following States are Members of the EU and thus Members of Euratom: The Republic of Austria, the Kingdom of Belgium, the Republic of Bulgaria, ***the Republic of Croatia***, the Republic of Cyprus, the Czech Republic, the Kingdom of Denmark, the Republic of Estonia, the Republic of Finland, the French Republic, the Federal Republic of Germany, the Hellenic Republic, the Republic of Hungary, Ireland, the Italian Republic, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, the Republic of Malta, the Kingdom of the Netherlands, the Republic of Poland, the Portuguese Republic, Romania, the Slovak Republic, the Republic of Slovenia, the Kingdom of Spain, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland. ***All the 28 EU Member States have signed and ratified the Convention on Nuclear Safety and are now Contracting Parties.***

4. STATEMENT OF THE COMMITMENT OF THE CONTRACTING PARTY TO THE CONVENTION ON NUCLEAR SAFETY

According to the Convention, regional organisations must – in matters within their competence – "on their own behalf, exercise the rights and fulfil the responsibilities, which the Convention attributes to States Parties" (Article 30(4) ii of the Convention). The participation of Euratom in the CNS Review Meetings is therefore limited to those fields, for which a Community competence was declared by the Declaration under Article 30(4)iii of the Convention (see Annex 1).

On the basis of Article 2(b) and the relevant Articles of Title II, Chapter 3, entitled "Health and Safety" of the Euratom Treaty in connection with the Decision of the Court of Justice of the European Communities of 10th December 2002[38] the Community (Euratom) possesses competences, shared with the abovementioned Member States, in the fields of

- Legislative and regulatory framework, covered by Article 7,
- Assessment and verification of safety, covered by Article 14,
- Radiation protection, covered by Article 15,

37 See Declaration of Competences in Annex 1

38 C-29/99 ECJ 2002 Page I-11221, 102-103

- Emergency preparedness, covered by Article 16 paragraph 1, 2 and 3,
- Siting of nuclear installations covered by Article 17,
- Design and construction of nuclear installations, covered by Article 18 and
- Operation of nuclear installations, covered by Article 19 of the Convention.

In conclusion, only the Articles 1 to 5, Article 7 and Articles 14 to 35 of the Convention apply to Euratom. This fact was and is duly reflected in the past[39] and present Euratom Reports presented by the Commission.

As the Council Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations covers additional Articles of the Convention, EURATOM reports under Articles 8 to 12 on a voluntary basis.

5. EXPLANATION OF THE PREPARATION, STRUCTURE AND MAIN FEATURES OF THE EURATOM REPORT

Euratom submits the present report for peer review at the ***sixth*** Review Meeting of the Convention at the International Atomic Energy Agency (IAEA) ***to be held from 24 March to 4 April 2014***. ***Since the Member States are responsible for implementing and applying Euratom legislation, the Euratom report only informs about the current legal framework, European initiatives and programmes, but not on the practical implementation of that legislation in the 28 Member States. This information is found in the respective national reports.***

This report is based on the last report for the 5th Review Meeting. It has been revised, updated and restructured to be in line with the new Guidelines regarding National Reports under the Convention on Nuclear Safety[40]. It is a full report without references to previous reports to allow easy reading. New information has been highlighted, as recommended, in bold italics font. For a better follow-up of the 5th review meeting the last 'Rapporteur's Oral Report' for EURATOM has been annexed to the present report.

The EURATOM report starts with an introduction on the general policy, the accession and declaration of competences, followed by a summary to highlight the follow-up from the 5th Review Meeting. Finally, the Article by Article Review should demonstrate how Euratom, ***as a regional organisation***, contributes to meeting the main objective of the Convention: to achieve and maintain a high level of nuclear safety worldwide by enhancing Community measures and international cooperation. It also shows how the Community meets the obligations of the applicable articles established by the Convention.

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39 EURATOM Report on the implementation of the obligations of the Convention on Nuclear Safety (COM(2001) 568 final) and EURATOM Report on the implementation of the obligations under the Convention on Nuclear Safety, Brussels, 13.10.2004, C(2004) 374

40 INFCIRC/572/Rev.4 of 28 January 2013

Through Council Directive establishing a Community framework for the nuclear safety of nuclear installations[41] adopted in 2009, Euratom regulated for the first time a number of nuclear safety aspects which had not been tackled before by Euratom. This Directive deals with several aspects touched upon by Articles 8-12 of the Convention. It is for this reason that the present Report, in addition to reporting under Article 7 and Articles 14 to 19 of the Convention which are mentioned in the relevant Euratom Declaration under Article 30(4)iii of the Convention (deposited with the Director General of the IAEA on 11th May 2004), provides selected information relating to Articles 8-12 of the Convention, even though it does so on a voluntary basis.

[41] OJ L 172, 02/07/2009, p.18

SECTION II
SUMMARY

1. EURATOM'S EFFORTS IN ACHIEVING THE CONVENTIONS OBJECTIVES

The European Atomic Energy Community (Euratom) has been active in the field of nuclear safety for over 50 years, through the action of its institutions, in particular the Commission and the Council, at different levels. The commitment of Euratom and its Member States to a high level of nuclear safety and to the safe management of spent fuel and radioactive waste is reflected, in particular, in the existing Euratom legislative framework adopted under the Euratom Treaty as well as in the relevant Council Resolutions and conclusions of the European Council.

In the Council Resolution of 22 July 1975 on the technological problems of nuclear safety[42], the European Council considered that the technological problems relating to nuclear safety, in view of their environmental and health implications, called for appropriate action at Community level which would take into account the prerogatives and responsibilities assumed by national authorities. It recognised that it was the Commission's responsibility to act as a catalyst in initiatives taken at international level with regard to nuclear safety. As a result of this resolution, the Commission set up several expert groups dealing with nuclear safety matters. These groups, in which representatives of the safety authorities of the Member States participate, have actively contributed to the harmonisation of nuclear safety practices.

The Council Resolution of 18 June 1992 on the technological problems of nuclear safety[43] encouraged the continuation of the process of consultation and co-operation established by the resolution of 1975, and recommended its extension to third countries, notably to the Central and Eastern European Countries (hereinafter: CEEC) and the New independent States comprising the Republics of the former Soviet Union as a result of its break-up (hereinafter: NIS). It further requested the Member States and the Commission to adopt as the fundamental and priority objective of Community cooperation in the nuclear field, in particular with the other European countries, especially those of Central and Eastern Europe and the Republics of the former Soviet Union, that of bringing their nuclear installations up to safety levels equivalent to those in practice in the Community and to facilitate the implementation of the safety criteria and requirements already recognized throughout the Community. Following this Resolution, participation in the different expert groups was extended to representatives of the CEECs and the NIS.

The Cologne European Council in June 1999 asked the Commission to ensure that high safety standards are applied in Central and Eastern Europe. Following on from this request, the safety of nuclear installations in the candidate countries[44] was evaluated by the Commission

42 OJ C-185 of 14.08.1975, p. 1

43 OJ C-172 of 08.07.1992, p. 2

44 The fifth EU Enlargement comprised the largest number of countries ever admitted at one time: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia acceded to the EU on 1st May 2004, Romania and Bulgaria joined in on 1st January 2007.

and the Council in 2001, making it possible to arrive at a European perspective with regard to nuclear safety agreed by the then fifteen Member States and the Commission.

The Laeken European Council in December 2001 marked the transition from reflection conducted in the perspective of enlargement to that of a global political vision at the level of the enlarged EU. One of the conclusions of this meeting was that *"the European Council undertakes to maintain a high level of nuclear safety in the Union. It stresses the need to monitor the security and safety of nuclear power stations. It calls for regular reports from Member States' atomic energy experts, who will maintain close contacts with the Commission".*

In the framework of the discussions on recent Commission proposals for Council Directives (Euratom) setting out the basic obligations and general principles on the safety of nuclear installations and on the management of spent nuclear fuel and radioactive waste[45], the Council of the European Union, at its 2593rd meeting held in Luxembourg on 28 June 2004, adopted clear Conclusions on nuclear safety and on the safety of the management of spent nuclear fuel and radioactive waste, where, among other, the following statements were made:

> "(the Council) urges Member States together with the Commission:
>
> to avail themselves in particular of the possibilities offered by the review meetings under the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management in 2005 and 2006 respectively,
>
> to assess the results achieved under these Conventions, including at previous Conferences of the Parties,
>
> to take stock of the outcome of the work conducted by national nuclear regulatory authorities in multinational fora, including in the WENRA framework,
>
> and on that basis
>
> to engage in a wide ranging consultation process facilitating the choice of instrument(s), in the framework of the Euratom Treaty, that can contribute more effectively to achieving nuclear safety and the safe management of spent fuel and radioactive waste, without excluding any instrument and in line with the principles of better law making."

Following the June 2004 Council conclusions on Nuclear Safety and Safe management of spent fuel and radioactive waste[46], the *Ad Hoc* Working Party on Nuclear Safety (WPNS) had been activated by the Council to undertake a wide ranging consultation process to identify new instrument(s) that could contribute more effectively to further improving nuclear safety and the safety of the management of the spent fuel and radioactive waste, without excluding

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45 Proposal for a Council Directive setting out basic obligations and general principles on the safety of nuclear installations (COM(2003) 32 final

46 Council Document 10823/04

any instrument in the framework of the Euratom Treaty and in line with the principles of better law making.

Following the accession by Euratom to the Convention on Nuclear Safety[47], this Convention became a part of the Euratom corpus of binding legislation. Council Directive 96/29/Euratom lays down the Basic Safety Standards and Member States ensure the safety of nuclear facilities from the design to the decommissioning in compliance with the said Directive.[48]

On 3 December 2004 the Council agreed an Action Plan[49] for following up on the Council conclusions, which called for an "extensive consultation" with stakeholders before any instrument(s) in these fields were developed in the framework of the Euratom Treaty. During the following years the Member States together with the Commission reviewed the outcome of the work conducted by national nuclear regulatory authorities in multinational fora, such as the OECD/NEA and the IAEA, including in the WENRA framework, and in the past review meetings under the Convention on Nuclear Safety and the Joint Convention. In December 2006, the Council produced a final report serving as a basis for the consultation process, in particular taking into account the work conducted by national nuclear regulatory authorities to reach harmonised safety approaches.[50]

The Brussels European Council of 8/9 March 2007 confirmed that it is for each and every Member State to decide whether or not to rely on nuclear energy and stressed, that this has to be done while further improving nuclear safety and the management of radioactive waste.[51]

To this effect the Council envisages the creation of a high-level group on nuclear safety and waste management and suggested that broad discussion takes place among all relevant stakeholders on the opportunities and risks of nuclear energy.

On 8 May 2007 the Council adopted Conclusions on Nuclear Safety and Safe Management of Spent Nuclear Fuel and Radioactive Waste on the basis of the Presidency Conclusions of the Brussels European Council of 8/9 March 2007 in Brussels[52]. In these conclusions the Council recalled that nuclear safety is a national responsibility exercised where appropriate in an EU-framework and that decisions concerning safety actions and the supervision of nuclear installations would remain solely with the operators and national authorities. Community added value had been recognized in building common views on nuclear safety issues, and Council resolutions have paved the way for co-operation between Member States and the Commission. Finally the Council endorsed the Commission proposal[53] concerning the establishment of a High Level Group on Nuclear Safety and Waste Management. ***The group was later renamed ENSREG, the European Nuclear Safety Regulators Group. ENSREG's***

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47 See above, chapter 3, Euratom accession to the Convention on Nuclear Safety, page 19.

48 Opinion of the Article 31 Group of Experts of 19 December 2002 (not published in the Official Journal), see http://ec.europa.eu/energy/nuclear/radiation_protection/doc/art31/2002_12_opinion_nuclear_safety.pdf

49 Council Document 15955/04

50 Council of the European Union, Brussels, 20 January 2005, 5574/05 ATO 11

51 Council of the European Union, Brussels, 8-9 March 2007: Presidency Conclusions (9 March 2007: Brussels), Council Document No 7224/07 of 2 May 2007, REV 1, CONCL 1.

52 Council Conclusions on Nuclear Safety and Safe Management of Spent Nuclear Fuel and Radioactive Waste, 2798th ECONOMIC and FINANCIAL AFFAIRS Council meeting, Brussels 8 May 2007.

53 Communication from the Commission to the European Council and the European Parliament: "An Energy Policy for Europe", COM(2007) 1 final of 10.01.2007; SEC(2007)12.

central mission is to strive for the continuous improvement in nuclear safety and radioactive waste and spent fuel management and their regulation, and to promote openness and transparency in those areas. ENSREG has divided its activities in four basic areas: Safety of nuclear installations, Radioactive waste and spent fuel management, Openness and transparency, and, recently, International cooperation.

The accident that occurred at the Fukushima-Daiichi nuclear power plant in Japan, following the earthquake and tsunami of 11 March 2011, has renewed political attention to the measures needed to minimise risk and guarantee the most robust levels of nuclear safety.

The Euratom Community response to the events at Fukushima was immediate. As requested by the European Council at its meeting of 24 – 25 March 2011[54], and together with national regulators[55] and the nuclear industry, the Commission launched a process to carry out EU-wide comprehensive risk and safety assessments of nuclear power plants ("stress tests"). The initiative was supported by the European Parliament. The European Council also asked the Commission to "review the existing legal and regulatory framework for the safety of nuclear installations" and to propose any improvements that may be necessary. Finally, given the potential cross-border implications of nuclear accidents, the European Council asked the Commission to invite EU neighbouring countries to take part in the stress test process.

2. SIGNIFICANT CHANGES AND DEVELOPMENTS SINCE THE PREVIOUS EURATOM REPORT

2.1. Comprehensive risk and safety assessments ("stress tests") of nuclear power plants in the European Union overview

2.1.1. Background

In the Conclusions of its meeting of 24-25 March 2011, the European Council, comprising the Heads of State or Government of the EU Member States, stated that the safety of all EU nuclear plants should be reviewed on the basis of a comprehensive and transparent risk and safety assessment.

The mandate from the European Council also comprised the invitation for EU neighbouring countries to take part in the process.

The Commission and the European Nuclear Safety Regulators' Group (ENSREG)[56], which comprises the Euratom Member States' national nuclear safety or regulatory authorities

54 EUCO 10/11 (paragraph 31)

55 National nuclear safety regulators meet in the European High Level Group on Nuclear Safety and Waste Management. This group was set up through the Commission Decision 2007/530/Euratom of 7 July 2007 (O.J. L 195/44, 27.7.2007, p. 44 – 46). The group later adopted the acronym ENSREG (European Nuclear Safety Regulators Group). More information is available at www.ensreg.eu

56 The role of ENSREG is to advise and assist the Commission, at its own initiative or at the initiative of the Commission, to progressively develop a common understanding and furthering common approaches in priority domains related to the safety of nuclear installations, the safety of the management of spent fuel and radioactive waste and transparency.

responsible for nuclear safety, were invited to reassess the safety margins of the EU nuclear power plants in the light of the Fukushima events. This was to be done on the basis of a methodology shared among the Member States, thereby ensuring full transparency for the public.

The scope and modalities of this safety evaluation were developed in a coordinated framework making full use of available expertise (notably from the Western European Nuclear Regulators Association, WENRA). The Commission and ENSREG reached an agreement on the criteria, methodology and timeframe for the assessments on 25 May 2011.

It was agreed that the safety assessment would consist of analysing how nuclear installations can withstand the consequences of various unexpected events. These can range from natural disasters to human error or technical failure and other accidental impacts, such as transport accidents[57]***.***

All fourteen EU Member States that operate nuclear power plants[58] ***plus Lithuania***[59]***, which is decommissioning its nuclear power producing units, participated in these assessments. Switzerland, Ukraine and Croatia participated fully in the EU Stress Tests and the peer review process, while other neighbouring countries (e.g. Turkey, Belarus and Armenia) that agreed to use the same methodology, are working within different timetables. Several countries***[60] ***decided – in addition to the agreed requirements – to include not only operating nuclear power plants but also decommissioned plants or other nuclear facilities (e.g. research nuclear reactors) and other issues (e.g. human and organizational factors) relevant from the nuclear safety point of view.***

Specifications on the safety evaluation tests[61] ***define three main areas to be assessed:***

- ***extreme natural initiating events (earthquake, flooding, extreme weather conditions);***
- ***response of the plants to prolonged loss of electric power and/or loss of the ultimate heat sink (irrespective of the initiating cause); and***
- ***severe accident management.***

The methods of investigation are defined nationally and are under the responsibility of the national regulatory authorities.

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57 As nuclear safety and nuclear security are closely related, no assessment of the safety of nuclear power plants can be complete if there is not a similar analysis carried out on security aspects. Therefore, Member States also agreed, through the creation of a Council Ad-hoc Group on Nuclear Security (AHGNS), on a security track to analyse security threats and the prevention of, and response to, incidents due to malevolent or terrorist acts.

58 Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Hungary, Netherlands, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom.

59 Despite closure of the last unit in Ignalina in 2009 in fulfillment of the EU Accession obligations, there are still site-specific operating licenses in place as well as significant amounts of spent fuel stored on-site.

60 e.g. Belgium, Bulgaria, Finland, France, Germany, Lithuania, Netherlands, Slovakia, Spain, Ukraine, United Kingdom.

61 Annex I of the ENSREG declaration of 12 – 13 May 2011.

2.1.2. Phases of the EU-wide nuclear safety assessments

The EU-wide stress test process, officially started on 1 June 2011, has been organised in three main phases:

- ***Self assessments by nuclear operators. Nuclear operators were asked to produce progress reports by 15 August 2011 and final reports by 31 October 2011 for submission to their respective national regulator.***

- ***Review of the self assessments by national regulators. National regulators reviewed the information supplied by operators and prepared national reports (progress reports by 15 September 2011, and final reports by 31 December 2011) that are available to the general public[62].***

  In compliance with the agreed deadlines, all the participating EU Member States transmitted their progress and final reports to the Commission[63]. Based on the progress reports and on the interim report prepared by the Council Ad Hoc Group on Nuclear Security (AHGNS), the Commission adopted the Commission interim stress tests report[64], presented to the European Council meeting of 9 December 2011. This document summarises the work carried out by that time to reassess the safety and security of nuclear power plants operating in the Community and provides the Commission's initial assessment of the current situation, as well as some preliminary ideas for future work.

- ***Peer reviews of the national reports, conducted by national experts (from both nuclear and non-nuclear countries) as well as Commission experts in the period January–April 2012, aimed to provide a complementary assessment of the national results at the European level with regard to completeness and consistency, whilst ensuring the highest levels of objectivity and neutrality in order to build confidence in the results. An overview report was produced by the ENSREG Peer Review Board[65]which was endorsed by ENSREG.***

2.1.3. *The peer review process*

In order to provide an objective assessment of the work done at national level and to maximise coherence and comparability, the national reports were subjected to a peer review process, organised in three phases:

- ***A desktop review phase where the 17 national reports were analysed by all the peer reviewers, who posed more than 2 000 written questions on the reports. The Stress Tests secretariat run by the Joint Research Centre of the Commission opened a dedicated website to gather questions from the public for the peer reviews.***

- ***A peer review related to horizontal topics, comparing the consistency of the national approaches and findings in three key areas: extreme natural events, loss of safety***

62 www.ensreg.eu/EU-Stress-Tests/Country-Specific-Reports

63 From neighbouring countries, Switzerland and Ukraine have provided national reports.

64 Communication from the Commission to the Council and the European Parliament on the interim report on the comprehensive risk and safety assessments ("stress tests") of nuclear power plants in the European Union (COM(2011) 784 final, 24.11.2011)

65 "Peer review Report – Stress Tests performed on European nuclear power plants" available at http://www.ensreg.eu/sites/default/files/EU%20Stress%20Test%20Peer%20Review%20Final%20Report_0.pdf

functions and severe accident management. The topical review meetings were organised at the Commission premises in February 2012, and involved around 90 experts. National teams were called in and asked to answer the questions posed in the desktop review phase. The result is summarised in 3 topical reports and 17 draft country reports for each participating country, with a list of remaining open questions for the ensuing country peer reviews.

- ***A vertical, individual review of each of the 17 country reports. The country peer reviews took place in March 2012 and included NPP site visits. As a result, the country reports were finalised, providing the basis – together with the topical reports – for the overall peer review Board report. ENSREG and the Commission adopted on 26 April 2012 a Joint Statement on the results of the Stress Tests on European NPPs[66].***

The peer review teams were composed of nuclear safety experts from Member States, Switzerland, Ukraine and from the Commission, with observers from Croatia and third countries (USA, Japan) and the IAEA.

All reports, including the licensee reports have been made available on the ENSREG website[67].

2.1.4. Main findings from the Stress Tests

The European stress tests were considered as an unprecedented exercise and have demonstrated that the standards of safety of nuclear power plants in Europe are generally high. It is to be underlined that, following it, there was no need to shut down any of the European NPPs. In all the reviewed countries, the stress tests have showed that significant steps have been taken to improve their plants. Furthermore, the stress tests have identified strong features, weaknesses and possible measures to increase plant robustness in light of the preliminary lessons learned from the Fukushima disaster. Such measures include provisions of additional mobile equipment to prevent or mitigate severe accidents, installation of hardened fixed equipment, and the improvement of severe accident management, together with appropriate staff training measures.

In the course of the Stress Tests, EU-wide issues were identified through topical reviews. The peer review Board report identified four main areas for further improvement:

- ***Developing European guidance by WENRA, involving the best available expertise from Europe, on the assessment of natural hazards, including earthquake, flooding and extreme weather conditions, and safety margins beyond the design basis and cliff-edge effects, to increase consistency between Member States;***

- ***Using Periodic Safety Reviews (PSRs), as often as appropriate but at least every 10 years, to maintain and improve the safety and robustness of plants;***

- ***Implementation of recognised measures to protect containment integrity as the last barrier to protect the people and the environment against radioactive releases resulting from a nuclear accident;***

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66 "Joint Statement of ENSREG and the European Commission on Stress Tests and Peer Review Process" available at http://www.ensreg.eu/sites/default/files/EC%20ENSREG%20Joint%20Statement%2026%20April%202012%20-Final%20to%20publish.pdf

67 www.ensreg.eu

- ***Preventing accidents resulting from extreme natural hazards and limiting their consequences.***

2.1.5. Stress Tests Follow-up

In line with the above-mentioned Joint Statement of the Commission and the ENSREG of 26 April 2012, ENSREG agreed in July 2012 on an Action Plan, which aims at ensuring that the recommendations from the peer review process will be implemented in a consistent and transparent manner. National action plans were submitted to the Commission by the end of 2012 and were peer reviewed in early 2013, with a dedicated Workshop organised 22-26 April 2013. A Summary Report of the Workshop was prepared and presented at the 2013 Second ENSREG Conference on Nuclear Safety in Europe[68]. Furthermore in the process of ensuring a proper follow-up of the Stress Tests, the Commission will elaborate, in close cooperation with ENSREG, a consolidated report on the status of the implementation of the Stress Tests recommendations, envisaged to be issued in June 2014 and transmitted to the European Council.

2.2. *Towards a revision of the legal and regulatory Euratom Community framework for the nuclear safety of nuclear installations*

In the legislative domain, the Commission received a mandate through the European Council Conclusions of 24-25 March 2011 "to review the existing legal and regulatory framework for the safety of nuclear installations" and propose any improvements that may be necessary.

The European Parliament has also encouraged a legislative review. In the 2013 Resolution on Stress Tests, after welcoming "the efforts made by the Commission, especially through ENSREG, and by the national regulators to subject 145 reactors in the EU and 20 reactors outside the EU to a stress test procedure" and after stressing that "an overall nuclear safety and security policy […] should also guarantee the existence of strong and independent regulators", it called on the upcoming revision to be "ambitious in nature", including major improvements in areas such as "safety procedures and frameworks – in particular through the definition and implementation of binding nuclear safety standards that reflect state-of-the-art practices in the EU in technical, regulatory and operational respects – as well as in the role and resources of the nuclear regulatory authorities and, in particular, should boost the latter's independence, openness and transparency, while also strengthening monitoring and peer review"[69].

The European Economic and Social Committee expressed in the 2012 Opinion on the Commission Communication on a Final Stress Tests Report its support for the "Commission's intention to undertake an ambitious revision of the Nuclear Safety Directive".

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68 http://www.ensreg.eu/ensreg-conferences

69 Other previous European Parliament Resolutions in 2011 have stated that "future legislative initiatives to set up a common framework for nuclear safety are essential in order to continuously improve safety standards in Europe" or called for "an urgent revision of the Nuclear Safety Directive with a view to its strengthening, namely by taking into account the results of the Stress Tests implemented in the aftermath of the Fukushima accident".

In response to the mandate from the European Council and the calls from the other EU institutions and bodies, the Commission engaged in a comprehensive process of analysis and opinion gathering, to identify the appropriate areas and mechanisms for legislative intervention. This process included an open on-line public consultation (December 2011 – February 2012), complemented by an extensive dialogue with the stakeholders.

The 2011 and 2012 Stress Tests Commission Communications contain indications on the potential areas of legislative improvement. In this context, with reference to the existing Council Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations (hereinafter referred to as "Nuclear Safety Directive"), the latter Commission Communication highlights the areas of safety procedures and frameworks, role and means of nuclear regulatory authorities, openness and transparency, monitoring and verification.

On this basis, a draft proposal for a Directive amending the Nuclear Safety Directive[70] has been developed, benefiting from the input and expertise of the Euratom Treaty Article 31 Group of scientific experts, as well as an extensive consultation process with the high-level representatives of the national nuclear regulatory authorities reunited in ENSREG. This draft proposal has been adopted on 13 June 2013 by the Commission in order to obtain the prior opinion of the European Economic and Social Committee before being submitted to the European Parliament for consultation and to the Council for final adoption.

2.3. Revised Commission recommendation on the implementation of Article 37 of the Euratom Treaty

Some ten years of experience gained in the implementation of the Commission Recommendation of 6 December 1999[71] on the application of Article 37 revealed a number of issues to be addressed, such as improving the terminology to ensure consistency and clarity of the provisions and limiting the General Data to be provided by Member States to only cover information necessary for the Commission to issue its Opinion. It was further considered that a limited number of trivial operations and modifications of existing plans, having a priori no or negligible radiological impact in other Member States, should either not be submitted to the Commission or an assessment of doses in other Member States was not needed where doses to the population in the vicinity of the plant were found to be extremely low.

A revised Commission Recommendation was therefore adopted on 11 October 2010, as Commission Recommendation 2010/635/Euratom.

The most relevant modifications are as follows:

Where it concerns the information to be presented in the General Data:

- ***The introduction of a "dose threshold" to the effect that, if it is demonstrated that the calculated dose to the population living in the vicinity of an operation does not exceed 10 µSv/year (under normal operating conditions) or 1 mSv/year (in accidental situations)***

[70] COM(2013)343 available at http://ec.europa.eu/energy/nuclear/safety/safety_en.htm

[71] 1999/829/Euratom, OJ L 324, 16.12.1999, p. 23

and that there are no exceptional exposure pathways (e.g. the export of foodstuffs), then a dose calculation for the population in other affected Member States is not required. This exemption does however not apply to reactor and reprocessing operations.

- *The European Court of Justice judgement in case C-29/99[72] sanctioned the scope of the Article 37 procedure to also address safety-related information in the context of the assessment of accidental situations. As a result of this, the revised Recommendation also requests that information on unplanned releases from reactors and reprocessing plants is extended beyond the reference accidents to also address the accident upon which the national competent authorities base the site-related national emergency plans. This allows an assessment of the radiological impact on the population of another Member State with a similar level of precaution as for the population of the submitting Member State.*

Where it concerns the definition of operations that require a submission of General Data:

- *The introduction of a reactor "power threshold" below which no submission is required: the operation of research reactors whose maximum power do not exceed 1 MW continuous thermal load; the dismantling of reactors whose maximum power did not exceed 50 MW continuous thermal load.*

- *Submissions are now also required for the dismantling of mixed oxide fuel fabrication plants (besides the already required submissions for the dismantling of reactors and fuel reprocessing plants).*

2.4. Commission Proposal for a Council Directive laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation (Basic Safety Standards).

Following the latest international recommendations (International Commission on Radiological Protection ICRP Publication 103, 2007), the Commission worked out a Proposal for a Council Directive laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation. The proposal was adopted on 30 May 2012 and, being submitted to the European Parliament for consultation and to the Council for adoption, is now at a very advanced stage of discussion within the Council following several rounds of examination and having been already reached a preliminary agreement at the Council working party level. With a view to finalising the text and having it formally adopted by the Council before the end of 2013, the European Parliament must deliver its opinion early autumn.

The proposal for a Euratom Directive laying down Basic Safety Standards for protection against the dangers arising from exposure to ionising radiation brings into one legislative act five Euratom directives, namely Council Directive 2003/122/Euratom, Council Directive 90/641/Euratom, Council Directive 89/618/Euratom, Council Directive 97/43/Euratom and Council Directive 96/29/Euratom.

In addition to this recast, the proposal brings the radiation protection requirements of the above Directives in line with the latest international recommendations (International

[72] Judgment of the Court of Justice of 10 December 2002, Commission v Council, Case C-29/99.

Commission on Radiological Protection ICRP Publication 103, 2007) and new scientific findings (e. g. sensitivity of the lens of the eye, new methodology for calculation of doses). The proposal establishes the principles of radiation protection and covers different exposure situations – planned, existing, and emergency.

2.5. Instruments for improving the level of nuclear safety in third countries

The 1986 Chernobyl accident highlighted the catastrophic consequences of nuclear power with a deficient design associated with a poor safety culture and an inadequate operational safety and regulatory framework. In order to contribute to an improvement of the nuclear safety situation in Central and Eastern European Countries (CEEC) and New Independent States (NIS), the EU used the nuclear safety component of two major instruments: PHARE and TACIS. Since the beginning of 2007 the assistance/cooperation under these instruments continued under, respectively, the Instrument for Pre-Accession Assistance and the Instrument for Nuclear Safety Cooperation.

2.5.1. Instrument for Nuclear Safety Co-operation[73]

After TACIS, the INSC enlarged the geographical scope of the nuclear safety and nuclear safeguards cooperation to 'third countries' (i.e., non EU countries); it had a budget of some EUR 524 million for the period 2007-2013. As the nuclear plants improvement projects initiated under TACIS were completed, the nuclear safety cooperation evolved towards improvement of safety culture (including operational safety), support to nuclear regulators and waste management. Support started to be provided also to third countries planning to initiate nuclear power programmes, particularly in the EU neighbourhood and South East Asia. Cooperation was also initiated with countries with established nuclear power programmes in Latin America and with China. In total some 20 countries have been benefiting from cooperation under the INSC.

Collaboration with the IAEA was stepped up under the INSC with the objective of further developing nuclear safety culture and the required expertise at global level and to support adherence to international Conventions and Treaties as well as to avoid duplication of activities in the cooperation programmes carried out for the third countries.

A new INSC is under consideration for the period 2014-2020. The new instrument continues the actions initiated under its predecessors and would focus on three main objectives: (i) promotion of an effective nuclear safety culture and implementation of the highest nuclear safety standards and radiation protection and continous improvement of nuclear safey; (ii) responsible and safe management of spent fuel and radioactive waste, decommissioning and remediation of former nuclear sites and installations; (iii) establishment of frameworks and methodologies for the application of efficient and effective safeguards for nuclear material in third countries. The new instrument would also have its geographical scope enlarged and would include in future the countries previously under the Instrument for Pre-Accession Assistance.

It is noted that nuclear security issues, e.g. illicit trafficking, may also be funded through other EU instruments, like the Instrument for Stability[74].

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[73] Council Regulation (Euratom) No 300/2007 of 19 February 2007 establishing an Instrument for Nuclear Safety Cooperation, OJ L81, 22.03.2007, p.1.

2.5.2. Instrument for Pre-Accession Assistance (IPA[75])

Western Balkan countries, which are currently potential candidate and candidate countries for the EU accession (Albania, Bosnia-Herzegovina, the Former Yugoslav Republic of Macedonia, Kosovo under UNSCR 1244/99, Montenegro and Serbia), and Croatia, received very limited support for nuclear activities until 2006 through PHARE and the CARDS programme (Community Assistance for Reconstruction, Development and Stability in the Balkans).

Since 1 January 2007, a more substantial support has been provided through IPA to the Western Balkan Countries. Between 2007 and 2011, some 45 nuclear projects were programmed for these countries for a total amount of about 33 million Euros. The main activities of the IPA horizontal programme on nuclear safety and radiation protection covered the repatriation of spent fuel from Serbia to the Russian Federation, management of radioactive waste, radiation protection, actions to prevent illicit trafficking of nuclear materials and radiation sources, monitoring of the radioactivity in the environment and enhancement of the technical capacity of newly created nuclear regulatory bodies. Several IPA projects were implemented under joint management with the IAEA[76].

2.6. Experts Groups of the Commission

2.6.1. High-level Group for Nuclear Safety and Waste Management (ENSREG)

Following the endorsement of the Commission proposal[77] by the European Council of 8-9 March 2007, the Conclusions of the 2798th meeting of the Council of the European Union (Economic and Financial Affairs) of 8 May 2007 and the European Parliament resolution on Assessing Euratom — 50 years of European nuclear energy policy (10 May 2007), the Commission adopted a Decision establishing a "European High Level Group for Nuclear Safety and Waste Management (High Level Group)"[78] on 17 July 2007. The High Level Group is based on the work carried out by European Union Member States and the Commission in the "Working Party on Nuclear Safety (WPNS)" during 2005 and 2006 which aimed at improving the nuclear safety within the European Union. Later the Group was renamed the European Nuclear Safety Regulators' Group (ENSREG). It brings together the senior representatives from the national nuclear regulatory or safety authorities of all EU Member States having competence in the areas covered, and a representative of the Commission. Its mandate is to develop common approaches in the domains of the safety of nuclear installations and the safety of the management of spent fuel and radioactive waste and to advise the Commission on possible Community legislation in these fields

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74 For more information see http://ec.europa.eu/europeaid/how/finance/nsci_en.htm

75 Council Regulation (EC) No 1085/2006 of 17 July 2006 establishing an Instrument for Pre-Accession Assistance (IPA), OJ L 210 31/03/2007, p. 82.

76 For more information see at: http://europa.eu/legislation_summaries/enlargement/ongoing_enlargement/e50020_en.htm

77 The Nuclear Illustrative Programme 2007 put forward a proposal to set up an EU High Level Group on Nuclear Safety and Waste Management; Communication from the Commission to the Council and the European Parliament of 4 October 2007, COM(2007) 565 final, p. 22, not published in the Official Journal; http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0565:FIN:EN:PDF

78 OJ L 195/44 of 27.07.2007

In July 2009, ENSREG submitted to the Commission its first Activity Report[79], presenting the Group's undertaken activities, discussions and recommendations covering nuclear safety, waste management and transparency aspects. The report was based on the work of its three subgroups in the areas of

– Improving nuclear safety arrangements,
– Improving spent fuel, radioactive waste management and decommissioning arrangements[80],
– Improving arrangements for transparency.

Within this context, one of main ENSREG activities consisted to elaborate on how to make a better use of the Convention of Nuclear Safety. Besides, ENSREG has promoted the benefits of the international peer reviews carried out against IAEA safety standards and self-assessments, and called the Member States to regularly carry out such reviews. This aspect was emphasized in the Directive establishing a Community framework for the nuclear safety of nuclear installations to which preparation ENSREG Members largely contributed.

In order to increase public's confidence that nuclear installations within EU are safe, ENSREG undertook to establish an independent website that would offer a global overview on how nuclear safety is regulated. The website ENSREG went online in January 2010 and is accessible under www.ensreg.eu, where all documents are available to the public.

Following ENSREG report, the Council prepared conclusions on the follow-up of ENSREG activities. It encourages the Group to continue developing common learning from the review meetings of the Convention on Nuclear Safety, and improve transparency on issues related to the nuclear safety and its regulation. Council conclusions invite the Group to elaborate common methodology for periodic self-assessments and a system for coordination of the international peer reviews in the EU Member States generating nuclear energy. Other major activities that have been identified by the Council conclusions are, inter alia, preparation of transparency guidance for national nuclear regulators, organisation of a European conference on nuclear safety regulation and possible solutions to the challenges regarding qualified staff in nuclear safety.

In July 2011, the second Activity Report[81] was submitted to the Commission. It highlighted its important role in the preparation of the Nuclear Safety Directive and the Spent Fuel and Radioactive Waste Management Directive. The intensive exchange of views among ENSREG members in the period when the Commission was preparing proposals for both Directives has contributed to the smoother conduct of the following formal process of the adoption in the Council. ENSREG played also a leading role in harmonisation of implementation of these two directives.

The effectiveness of the ENSREG's structure and the level of cooperation achieved were proven also by its role in EU activities after the nuclear accident in Japan in March 2011.

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79 The full Report is available at http://www.ensreg.eu/sites/default/files/HLG_p%282009-09%29_35.FINAL_.ENSREG%20Report%202009_0.pdf

80 The aspect of ENSREG work related to radioactive waste management is not covered in the present Community report for the review meeting on the implementation of the Convention on Nuclear Safety

81 The full Report is available at http://www.ensreg.eu/sites/default/files/ENSREG%20Report%202011%20final.pdf

ENSREG has promptly responded to the request from the European Council and was at the heart of so called stress tests and in the evaluation of the results of planned activities identifying lessons to be learned from the events in Japan as well as the potential for further improvements in nuclear safety.

For the period 2011-2013, ENSREG priorities were maintaining a high level of nuclear safety; carrying out "stress tests", and prompt implementation of its results; ensuring full transparency; and enhancing high level of safety of the radioactive waste management. At the time of preparing this report, the third Activity report is been drafting.

As a reminder, according to the procedure established, the Commission further transmits the biennial ENSREG Activity Report to the European Parliament and to the Council.

2.6.2. European Nuclear Energy Forum - ENEF

In the framework of the European Council Summit of 8 and 9 March 2007, the Heads of State and Government had an exchange of views on the contribution of nuclear energy in meeting the growing concerns about security of energy supply, reduction of CO_2 emissions and competitiveness, while taking fully into account nuclear safety and security aspects. In the Presidency conclusions[82], they also endorsed the Commission proposal to organise a broad discussion among all relevant stakeholders on the opportunities and risks of nuclear energy.

As a concrete follow-up, the Prime Ministers from the Czech Republic and the Republic of Slovakia agreed to jointly host this nuclear discussion forum. The plenary sessions of ENEF, have therefore been organised first twice, now once, a year successively in Bratislava and Prague. During the inaugural meeting of the Forum was held on 26 and 27 November 2007 in Bratislava, three Working Groups on "Risks", "Opportunities", and "Transparency" have been set up. These Working Groups meet more frequently, most often in Brussels, and prepare the plenary meetings. Several sub-groups concentrate on specific subjects. Outcomes of the working groups are presented during the plenary forum meetings.

Since 2007 the European Nuclear Energy Forum (ENEF) has been providing a unique platform for organising a broad discussion on opportunities and risks of nuclear energy, free of any "taboos", among all relevant stakeholders in the nuclear field: governments of the 27 EU Member States, European Institutions including the European Parliament and the European Economic and Social Committee, nuclear industry, electricity consumers and the civil society.

The ENEF sub-Working Group on Nuclear Installations Safety has been producing valuable documents over time, most of them serving as inputs for the Commission's legislative process. One can in particular mention contributions to the drafting process of the Safety Directive, support for the development of the European post-Fukushima Stress Tests, reviews and better understanding of the licensing approaches in Member States, proposals for harmonisation in the field of design assessment.

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82 Council of the European Union Document No. 7224/1/07 REV 1 of 2 May 2007 (not published in the Official Journal), http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf

In May 2013, ENEF held its eighth plenary meeting in Prague. Focus was much on the competitiveness of nuclear energy in the wide energy system framework and on the issue of new built financing. Nuclear safety and implementation of solutions for waste management were also discussed, as well as the ways to improve communication and transparency. High level interventions from political leaders and from industry showed that nuclear power is perceived as a major contributor to the future low carbon economy, together with renewables and other low carbon sources. On practical matters, it was decided that the ENEF should in the future enlarge its approach to cover the interactions with the other low carbon energy sources and the grid, through an broad energy system analysis. The next plenary ENEF meeting will be held in Bratislava in 2014.

2.6.3. Article 31 Group of Experts

It is laid down in Article 31 of the Treaty establishing the European Atomic Energy Community (the "Euratom Treaty") that a Group of scientific experts shall be attached to the Commission and shall have advisory status.

By virtue of the very high standing of its members, and their qualification in the fields of radiation protection and public health, the Group of scientific experts referred to in Article 31 of the Euratom Treaty (the "Group") is called upon to assume the all-important function of adviser to the Commission on preparing the basic standards to be established by the latter. Moreover, the Treaty itself requires the Commission to consult the Group when revising and supplementing the basic standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation (Articles 31 and 32 of the Euratom Treaty). Thus, when putting forward proposals concerning the basic standards, the Commission convenes the Group so that it may formally obtain an expert opinion to enable it to guide its decisions and make the requisite choices. Such decisions are collectively given by the Group whose members, each being appointed on a personal basis, speak on their own behalf and act independently of all external influence.

The Commission may convene the Group not only on the occasions specifically laid down in the Treaty, but also whenever it considers such action to be necessary. A schedule of at least two meetings a year should permit the Commission to keep up a fruitful dialogue with the Group, whilst periodically requesting exchanges of view and guidance on any major problem affecting radiation protection. If necessary, additional meetings can be held or matters can be dealt in written procedure.

The members of the Group are appointed for a term of five years, renewable, by the Scientific and Technical Committee set up in compliance with Article 134 of the Treaty. In its present composition the Groups expertise is primarily in the field of radiation protection as specified in Articles 30 to 32 of the Euratom Treaty, for this reason it focuses its opinion on those aspects of draft legislative measures, which would enhance the overall objectives of radiation protection.

The Group has adopted their own Rules of Procedure[83]. The opinions on legislative proposals of the Commission are published on http://ec.europa.eu/energy/nuclear/radiation_protection/article_31_en.htm.

Every year, the Commission organises, in cooperation with the Group of Experts referred to in Article 31 of the Euratom Treaty, a Scientific Seminar on emerging issues in Radiation Protection – generally addressing new research findings with potential policy and/or regulatory implications[84]. Leading scientists are invited to present the status of scientific knowledge in the selected topic. Based on the outcome of the Scientific Seminar, the Group of Experts referred to in Article 31 of the Euratom Treaty may recommend research, regulatory or legislative initiatives. The Commission takes into account the conclusions of the Experts when setting up its radiation protection program. The Experts' conclusions are valuable input to the process of reviewing and potentially revising European radiation protection legislation.

Having discussed a revision and recast of Community legislation in the area of radiation protection, the expert group established on the basis of Article 31 Euratom Treaty adopted their Opinion on the Revised Basic Safety Standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation on 24 February 2010[85]. The draft proposal aims at consolidating five Directives, including one Commission Recommendation into a new Basic Safety Standards Directive.

The expert group established on the basis of Article 31 Euratom Treaty was also consulted on the Proposal for Council Directive amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations and on 26 March 2013 the group adopted their opinion[86]. The Experts note that the Proposal of the Nuclear Safety Directive, as a main reflection of the Fukushima accident, aims at more independence and transparency of regulatory decisions. The Experts welcome the introduction of requirements on on-site emergency preparedness and response and the strengthening of the requirements for information of the public.

2.6.4. Article 37 Group of Experts

Under Article 37 of the Treaty establishing the European Atomic Energy Community (Euratom Treaty), each Member State shall provide the Commission with general data relating to any plan for the disposal of radioactive waste in whatever form. On the basis of these data and following consultation of the Group of Experts referred to in Article 31, the Commission shall determine whether the implementation of such a plan is liable to result in the radioactive contamination of the water, soil or airspace of another Member State and deliver its opinion within six months.

The Group of Experts referred to in Article 37 and created pursuant to Article 31 was, originally, the same as the group participating in the development of the basic safety

83 http://ec.europa.eu/energy/nuclear/radiation_protection/doc/art31/2007_11_procedure_rules.pdf

84 http://ec.europa.eu/energy/nuclear/radiation_protection/scientific_seminar_en.htm

85 Not published in the Official Journal, see http://ec.europa.eu/energy/nuclear/radiation_protection/doc/art31/2010_02_24_opinion_on_bss.pdf

standards and therefore comprised mainly public health experts. However, given the technical problems inherent in examining general data relating to the disposal of radioactive waste from fuel cycle facilities, the Commission decided, very early on, to ask the Scientific and Technical Committee (the STC), created pursuant to Article 134 of the Euratom Treaty, and, pursuant to Article 31, responsible for the appointment of experts to the group mentioned in Article 31, to appoint another group of scientific experts for the activities coming under Article 37. Members are appointed to the group every five years (in the absence of other circumstances), as members are appointed to the STC. The chairmanship of the group follows that of the Council.

Nevertheless, for a project presented by the Member State holding the Presidency, the chairmanship is assured by an expert from the Member State which held the previous Presidency or is due to hold the following one. The Secretariat of the Article 37 Group of Experts is provided by the Commission.

2.7. Research Initiatives under the Euratom Framework Programme on research and training and its extension

The Community supports nuclear safety-related research through the Euratom Framework Programme. Article 7 of the Euratom Treaty foresees the establishing of multi-annual Community research and training programmes in the fields of nuclear energy and uses of radiation. A significant part of this research falls within the scope the Convention. Information on previous Framework Programmes is available on http://cordis.europa.eu.

The 7th Framework Programme for nuclear research activities (7th Euratom FP) for the period 2007 to 2011 was adopted on 18 December 2006[87] and applies from 1 January 2007[88]. ***In 2011, the 7th Euratom FP was prolonged for two years from 2012 and 2013 (called "Euratom FP7+2") by Council Decision 2012/93/Euratom of 19 December 2011 concerning the Framework Programme of the European Atomic Energy Community for nuclear research and training activities (2012-2013)[89] in order to align its duration with the 7 years of the EU 7th Framework Programme (covering all other aspects of research except nuclear), with an emphasis on nuclear safety following the Fukushima events.***

The 7th Euratom FP is composed of two Specific Programmes:

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86 Not published in the Official Journal, see http://ec.europa.eu/energy/nuclear/radiation_protection/doc/art31/2013_04_opinion_nuclear_safety.pdf

87 Council Decision 2006/970/Euratom of 18 December 2006, OJ L 400 of 30.12.2006 p. 60, concerning the seventh Euratom Framework Programme for nuclear research and training activities (2007 to 2011); Council Decision 2006/976/Euratom of 19 December 2006, OJ L 400 of 30.12.2006, p.404, concerning the Specific Programme implementing the seventh Euratom Framework Programme for nuclear research and training activities (2007 to 2011), Council Regulation (Euratom) No 1908/2006 of 19 December 2006, OJ L 400 of 30.12.2006, p.1; laying down the rules for the participation of undertakings, research centres and universities in action under the Euratom seventh Euratom Framework Programme and for the dissemination of research results (2007 to 2011); Council Decision 2006/977/Euratom of 19 December 2006, OJ L 400 of 30.12.2006, p.434 , concerning the Specific Programme to be carried out be means of direct actions by the Joint Research Centre implementing the seventh Euratom Framework Programme for nuclear research and training activities (2007 to 2011).

88 For further information see http://ec.europa.eu/research/fp7/index_en.cfm

89 For further information see at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:047:0025:0032:EN:PDF

- Specific Programme for nuclear research and training activities implemented through indirect actions (i.e. implemented by consortia of nuclear industrial and R&D organisations, under the leadership of DG RTD),
- Specific Programme for research and training activities implemented by direct actions (i.e. carried out in the laboratories of the Commission's Joint Research Centre /DG JRC)[90].

During the discussion on this extension, in a post-Fukushima context, on 28 June 2011 the Council invited the Commission to organise a symposium in 2013 involving a broad spectrum of stakeholders to contribute to the debate on the benefits and limitations of nuclear fission for a low carbon economy. The symposium has been prepared by an interdisciplinary study involving, inter alia, experts from the fields of energy, economics and social sciences.

2.7.1. Specific Programme for nuclear research and training activities implemented through indirect actions

Annex I.B to Council Decision 2006/970/Euratom[91] establishing Framework Programme 7 (FP7) on the "Scientific and technological objectives, themes and activities" covering "nuclear fission and radiation protection" – indirect actions identifies the priority areas of research, which include waste management, reactor systems, radiation protection, infrastructure, human resources, mobility and training. These themes are developed further in the Specific Programme (refer to Annex to Council Decision 2006/976/Euratom). ***Here is the list of the Euratom FP7 topics, subdivided in 3 thematic and 2 cross-cutting areas:***

(1) Reactor systems: for their continued safe operation, taking into account new challenges such as plant life-time extension, and research to assess the potential, safety and waste-management aspects of future reactor systems (e.g. Generation IV);

(2) Management of ultimate radioactive waste: implementation-oriented R&D on all remaining key aspects of deep geological disposal of spent fuel and long-lived radioactive waste, and research on partitioning and transmutation and/or other concepts aimed at reducing the amount and/or hazard of the waste for disposal;

(3) Radiation protection: in particular, research on the risks from low protracted doses, medical uses and emergency management in order to provide the scientific basis for a robust, equitable and socially acceptable system of protection;

(4) Infrastructures: supporting the availability of and access to key infrastructures of pan-European interest in the above research activities;

(5) Human resources, mobility and training: to support the retention and further development of scientific competence and human capacity, that is: knowledge transfer and competence building.

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90 The JRC is a Directorate-General of the Commission and provides independent scientific and technical advice to the Commission and EU Member States in support of EU policies.

91 See Annex I.B to Council Decision 2006/970/Euratom establishing Framework Programme 7 (FP7) on the "Scientific and technological objectives, themes and activities" covering "nuclear fission and radiation protection" indirect actions, OJ L 460, 30/12/2006 as in L-54, 22.02.2007 p.21.

The Sustainable Nuclear Energy Technology Platform (SNETP), launched in September 2007, brings together all the key nuclear industrial and research organisations in Europe (over 100 organizations from 21 countries (20 EU Members States and Switzerland)) around a common vision for nuclear systems and safety-related research and development (R&D). The platform's Strategic Research and Innovation Agenda (SRA), available on their Website[92], including nuclear safety aspects. Both current and future nuclear fission systems are covered.

Particularly for Generation II & III nuclear systems, members of SNETP have established in November 2011 an international non-profit making organisation: the NUclear GENeration II & III Association (NUGENIA)[93], with utilities and vendors financial participation. The SARNET ("Severe Accident Research network of excellence", coordinated by IRSN, France, in FP6 and FP7) which is drawing the lessons from Fukushima, will be integrated in NUGENIA.

The Implementing Geological Disposal Technology Platform (IGD-TP) was launched in November 2009. It provides the necessary focus in the lead up to the operation of geological repositories for high-level nuclear waste in Europe (SRA in 2011, DS 2011-2016 in 2012).

The EU research strategy for radiation protection is in the hands of the Multidisciplinary European Low Dose Initiative. MELODI is actually a non-profit making association focussing on research related to the impact of low dose radiation (including the competing theories of "linear no-threshold"/LNT/ model and "hormesis"). Their SRA is under development. Also interesting in the context of radiation protection are two recently founded legal associations: (1) the European Platform on Preparedness for Nuclear and Radiological Emergency Response and Recovery (NERIS) and (2) the European Radioecology Alliance (ALLIANCE)[94].

The above stakeholders groups are also instrumental in the design and implementation of nuclear education and training (E&T) actions. When necessary, collaboration with other stakeholders can be implementing (e.g. the "Education, Training and Knowledge Management" (ETKM working group co-chaired by ENEN, the European Atomic Forum (FORATOM)[95], or the European Nuclear Society (ENS)[96]).

The above European technology platforms and independent authoritative expert bodies are not instruments of the Commission, though Euratom RTD activities will clearly benefit from the resulting enhanced strategic planning.

In the post-Fukushima context, international cooperation with Japan is considered particularly appropriate and was included as an element of the following Euratom FP7 proposals submitted under the last call 2013 (see Fission-2013-2.1.2, Fission-2013-3.3.1, Fission-2013-3.4.1, Fission-2013-4.1.2, and Fission-2013-5.1.1)

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92 http://www.snetp.eu

93 NUclear GENeration II & III Association (NUGENIA) under 1921 Belgian law - http://www.nugenia.org/

94 NERIS, legal association c\o CEPN, established in June 2010 - http://www.eu-neris.net/
ALLIANCE, legal association c\o SCK-CEN, established in October 2012 - http://www.er-alliance.org/

95 Foratom is made up of 17 national nuclear associations (nearly 800 firms in total) - http://www.foratom.org/

96 ENS is the federation of 23 nuclear societies ("from the Atlantic to the Urals") - http://www.euronuclear.org/

The NUSHARE project (NUclear culture SHARing amongst the EU Member States - January 2013 – December 2016) is a post-Fukushima action to develop and implement training and informing activities with the aim to share and grow, across EU Member States, the safety culture in nuclear installations. Security aspects (in particular, proliferation resistance and physical protection) will also be treated.

Details of all projects are available in volumes 1-5 of "Euratom FP7 Research and Training Projects" available on the Europa Website[97].

2.7.2. Specific Programme for research and training activities implemented by direct actions and carried out by the Commission's Joint Research Centre (JRC)

The main activities of the JRC under FP7 and FP7+2 support both the Commission and Member States in fulfilling their Euratom Treaty's obligations. The covered topics are in the field of: safety of nuclear installations and the fuel cycle; nuclear waste management and environmental impact; and nuclear security, safeguards and non-proliferation. The JRC also contributes to cross-cutting activities such as international cooperation, standardisation, and education and training.

Since 2011, stronger emphasis was given to the JRC's research on nuclear reactor and fuel and fuel cycle safety activities as an immediate response to the Fukushima accident. In this frame the JRC activities most relevant to the Convention namely supported the implementation of the European Nuclear Power Plants "Stress tests" peer review process and were related to the establishment of a new project on nuclear accident modelling and severe accidents management. Two new topics were moreover recently added to the work programme: research on NPP decommissioning and support to civil society in the decision making process in the nuclear sector.

The main JRC activities related to nuclear reactor and fuel safety are briefly addressed below:

- ***The JRC has further developed an initiative on Nuclear Power Plants (NPPs) that provides operational feedback on events occurring in NNPs. This initiative, called "EU Nuclear Safety Clearinghouse for Operational Experience Feedback", is organised via a network of EU regulators and Technical Support Organizations (TSOs), and operated by a centralised office located at the JRC. In this frame, the JRC regularly delivers topical reports on subjects important to the safe operation of European NPPs, and publishes quarterly reports on worldwide NPP operational events[98].***
- ***The JRC has provided continuous technical support for the implementation of EU instruments promoting the improvement of nuclear safety outside the EU. This includes technical input for the development and implementation of projects of the***

97 http://ec.europa.eu/research/energy/fi/fi_pubs/article_1186_en.htm; For an outline of the first batch of nuclear research and training activities funded by the Seventh Framework Programme of the European Atomic Energy Community (FP7 Euratom 2007–11) see http://ec.europa.eu/research/energy/pdf/09_07_euratom.pdf

98 https://clearinghouse-oef.jrc.ec.europa.eu/

Instrument for Nuclear Safety Cooperation (INSC) and Instrument for Pre-Accession Assistance (IPA).

- ***In the frame of the lessons-learnt from Fukushima, the JRC, since 2011, has been working to better assess plant behaviour beyond the design base accidental conditions. It has been developing research in nuclear severe accident modelling (including the source term) and participating in OECD/NEA Task Groups.***

- ***The JRC has developed and continuously upgrades the TRANSURANUS computer code that predicts all important aspects of nuclear fuel performance under normal, off-normal and transient irradiation conditions.***

- ***Long-term storage (up to a few hundred years) of spent fuel as well as retrievability and recoverability requirements are becoming an option considered in several EU Member States. In this context, the JRC contributes to reducing uncertainties associated with geologic repository of nuclear waste, and at implementing safe decommissioning.***

- ***The JRC has also continued pre-normative R&D and the participation in Materials Codes and Standards.***

- ***The JRC is the coordinator of the Euratom contribution to the Generation IV International Forum (GIF) research and contributes to the development of evaluation methods to assess and compare safety and performance of next generation reactor concepts.***

- ***In support to DG ENER, the JRC maintained and further improved the operability of the Commission tools for exchange of information in case of nuclear emergency (ECURIE). Improvements were linked to the development of the new WebECURIE software (with full compatibility with IAEA systems) as well as the preparation of the EURDEP to be used on global level by the IAEA.***

- ***Regarding the routine environmental monitoring, the JRC maintained and upgraded of the EURDEP databases, provided regular training courses to Member States. Annual inter-comparison harmonisation exercises with the national EU laboratories were also undertaken.***

- ***The JRC has started an EU-wide monitoring on training and education needs on human resources in the nuclear sector. Through the European Human Resource Observatory - Nuclear (EHRO-N)[99], it analysed the supply and demand for nuclear experts in the EU, identified gaps and deficiencies in the European nuclear education and training infrastructure and elaborated recommendations for remedial actions and optimization.***

- ***The JRC has established the European Nuclear Safety & Security School (EN3S) that provides via its unique expertise and facilities both vocational training courses and user access.***

[99] http://ehron.jrc.ec.europa.eu/

2.8. Continuation of existing programmes

2.8.1. ECURIE

See Chapter 15.3.1 on ECURIE (European Community Urgent Radiological Information Exchange), p. 74.

2.8.2. Decommissioning support of the European Union

During their accession negotiations Lithuania, Slovakia and Bulgaria have committed themselves to the early closure of units 1 and 2 of the Ignalina nuclear power plant in Lithuania, of units 1 and 2 of the Bohunice V1 nuclear power plant in Slovakia and of Units 1 to 4 of the Kozloduy nuclear power plant in Bulgaria. The commitments were laid down in the corresponding Treaty of Accession and related Protocols (Act of Accession for Lithuania[100] and Slovakia[101] and the Treaty of Accession for Bulgaria[102]).

In order to support the efforts of the Member States in this regard the EU has continued to provide substantial financial assistance. The two Council Regulations on the decommissioning support to Lithuania and the Slovak Republic[103] which remain valid for the period to the end of 2013 indicate the scope of this financial support:

- ***the safe maintenance of the shut-down plant prior to dismantling,***
- ***the actual decommissioning and waste management activities,***
- ***measures in the field of replacement capacity, energy efficiency and supply, which are consequential to the early closure and decommissioning of the NPPs, such as***
    - ***measures for the environmental upgrading in line with the acquis,***
    - ***modernisation measures of conventional capacity to replace the production capacity of closed down NPP reactors and***
    - ***other measures which contribute to the necessary restructuring, environmental upgrading and modernisation of the energy production, transmission and distribution sectors in the Member state as well as to enhancing the security of energy supply and improving energy efficiency in Lithuania.***

In order to support the early decommissioning efforts related to four units at Kozloduy Nuclear Power Plant the Community supported Bulgaria on the basis of the Accession Treaty of Bulgaria. This financial assistance of the Community was initially limited to the year 2009. Following the request of the Bulgarian government Community support was

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100 Protocol No 4 on the Ignalina nuclear power plant in Lithuania, Act of Accession, OJ L 236, 23.09.2003

101 Protocol No 9 on unit 1 and unit 2 of the Bohunice V1 nuclear power plant in Slovakia, Act of Accession, OJ L 236, 23.06.2003.

102 Article 30 of the Protocol of the Treaty of Accession concerning the conditions and arrangement for admission of the republic of Bulgaria and Romania to the European Union, OJ L 157, 21.06.2005

103 Council Regulation (EURATOM) No 549/2007 of 14 May 2007 on the implementation of Protocol No 9 on Unit 1 and Unit 2 of the Bohunice V1 nuclear power plant in Slovakia, OJ L 411 of 30.12.2006 and Council Regulation (EC) No 1990/2006 of 21 December 2006 on the implementation of Protocol No 4 on the Ignalina nuclear power plant in Lithuania, OJ L-27 of 02.02.2007, p. 7.

extended to the period 2010 – 2013 on the basis of a new dedicated Council Regulation[104], providing 300 Mio Euro in support of the following measures:

- ***measures connected with the decommissioning of the Kozloduy Nuclear Power Plant,***
- ***measures for environmental upgrading in line with the acquis and for modernising conventional production capacity to replace the production capacity of the four reactors at the Plan, and,***
- ***other measures which stem from the decision to close and decommission the Plant and which contribute to the necessary restructuring, upgrading of the environment and modernisation of the energy production, transmission and distribution sectors in Bulgaria as well as to enhancing security of supply and energy efficiency in Bulgaria.***

In response to requests from Bulgaria, Lithuania and Slovakia for further financial support the Commission has proposed additional support for the period 2014 – 2020 of approximately 553 Mio Euro and a proposal for a Council Regulation[105] was adopted by the Commission on 24 November 2011. The scope of the regulation is to support exclusively the on-going decommissioning-related activities i.e. "to assist the Member States concerned to implement the steady process towards the decommissioning end states of Kozloduy units 1 to 4, Ignalina units 1 and 2 and Bohunice V1 units 1 and 2 nuclear power plants, in accordance with their respective decommissioning plans, while maintaining the highest level of safety".

2.8.3. Euratom loans

Euratom gives loans to finance investment in nuclear installations for the industrial production of electricity or the nuclear fuel cycle in Member States. It also gives loans to finance projects for improving nuclear safety in certain non-Member States

This lending instrument was established by Council Decision 77/270/Euratom of 29 March 1977[106] empowering the Commission to issue Euratom loans for the purpose of contributing to the financing of nuclear power stations (the "Establishing Decision") in Member States. The ceiling for borrowing to fund Euratom lending was originally fixed by Council Decision 77/271/Euratom of 29 March 1977[107]. Subsequently, by various amendments of that Decision, the latest of which[108] increased it by 1 000 million Euro to 4 000 million Euro, the scope of the Euratom lending instrument was extended.

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104 Council Regulation (EURATOM) No 647/2010 of the Council of 13 July 2010 on financial assistance of the Union with respect to the decommissioning of Units 1 to 4 of the Kozloduy Nuclear Power Plant in Bulgaria (Kozloduy Programme)

105 Proposal for a Council Regulation on Union support for the nuclear decommissioning assistance programmes in Bulgaria, Lithuania and Slovakia, COM(2011) 783 final, 24.11.2011

106 Council Decision 77/270/Euratom of 29 March 1977 empowering the Commission to issue Euratom loans for the purpose of contributing to the financing of nuclear power stations, OJ L 88, 6.4.1977, p. 9–10.

107 Council Decision 77/271/Euratom of 29 March 1977 on the implementation of Decision 77/270/Euratom empowering the Commission to issue Euratom loans for the purpose of contributing to the financing of nuclear power stations, OJ L 88, 6.4.1977, p. 11–11.

108 Council Decision 90/212/Euratom of 23 April 1990, OJ No L 112, 03.05.1990, p 26

In a Decision dated 21 March 1994[109] the Council authorised the Commission to contract Euratom borrowings in order to contribute to the financing required for improving the degree of safety and efficiency of nuclear power stations in certain non-Member countries (the "Scope Extension Decision"). The proceeds of these borrowings would be assigned, in the form of loans, to the funding of projects to increase the safety and efficiency of the nuclear facilities in certain CEEC and NIS. In the last years, Euratom loans have been granted to three projects: the safety upgrade of the Kozloduy Power Plant Units 5 and 6 in Bulgaria, the completion of Cernavoda Power Plant Unit 2 in Romania, and the safety upgrade of Khmelnitsky Power Plant Unit 2 and Rovno Power Plant Unit 4 in Ukraine.[110]. ***Advanced discussions are taking place with Ukraine to grant a loan related to the project "Complex (Consolidated) Safety Upgrade Program of Nuclear Power Units".***

3. PREVIOUS SAFETY ISSUES

No safety issues have been identified during the last review meetings, but "Because Euratom is a unique entity it is difficult to report and Peer review under the framework of the convention."[111] For this reason the Report contains a comprehensive explanation of the European Union and Euratom as unique entities and the structure and format of the report have been adapted to better implement the new Guidelines regarding National Reports[112].

4. FUTURE SAFETY RELATED ACTIVITIES AND PLANNED OR PROPOSED PROGRAMMES

4.1. 4.1. "Horizon-2020" - The Framework Programme for Research and Innovation 2014 - 2020

The "Europe 2020 strategy for smart, sustainable and inclusive growth"[113] was launched by the Commission in 2010 as a set of seven "Flagship Initiatives"[114]. Of particular interest in this context is the EC Communications dedicated to research: "Innovation Union - Turning ideas into jobs, green growth and social progress". This Communication lays down the general objectives and Union added value of "Horizon-2020" - The Framework Programme for Research and Innovation 2014–2020[115]. The proposed programmes and funding budgets for the "Europe 2020 strategy" are available in the "Multiannual Financial Framework" (MFF), presented in June 2011 by the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - see "A Budget for Europe 2020"[116]. At the time of preparing

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109 Council Decision of 21 March 1994 amending Decision 77/270/Euratom to authorize the Commission to contract Euratom borrowings in order to contribute to the financing required for improving the degree of safety and efficiency of nuclear power stations in certain non-member countries, OJ L-84, 29.03.1994 p 4.

110 http://ec.europa.eu/economy_finance/financial_operation _instruments/financing_investment75_en.htm

111 From: Rapporteur's Report for EURATOM in the 4th Review Meeting under the Convention on Nuclear Safety, Vienna, 2008 (not published).

112 INFCIRC/572/Rev.4 of 28 January 2013.

113 *Europe 2020 strategy* - http://ec.europa.eu/europe2020/index_en.htm

114 http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/flagship-initiatives/index_en.htm

115 COM(2011) 808 of 30.11.2011

116 COM(2011) 500 of 29.6.2011available at *Budget Europe 2020 –* http://ec.europa.eu/budget/biblio/documents/fin_fwk1420/fin_fwk1420_en.cfm#doc738

this report, an interinstitutional political agreement had been already reached on the MFF. The European Parliament must give its formal approval before the entire package can be adopted by the Council by the end of 2013.

Horizon 2020 is thus the follow-up of FP7 (2007–2013): it is the Commission proposal (dated June 2011) for a € 80 billion funding programme for research and innovation - it is under item no 1 "Smart and Inclusive Growth" of the MFF.

4.2. Proposal for a Council Directive on Basic Safety Standards for the Protection of Workers and the General Public

The Commission has undertaken a revision ***and recast of Community legislation in the area of radiation protection by proposing a consolidation of five Directives, including one Commission Recommendation*** [117]***, into a new*** Basic Safety Standards Directive.

The Commission has consulted the Group of Experts established under Article 31 Euratom, and developed a complete and advanced draft proposal for a new Basic Safety Standards Directive. The Group issued an Opinion on this first draft on 24 February 2010[118]***. The proposal was further discussed within the European Economic and Social Committee (EESC). On 22 February 2012 the Committee adopted favourable opinion and the proposal was submitted to the European Parliament for consultation and to the Council of EU for adoption. The Commission proposal is now at a very advanced stage of discussion within the Council following several rounds of examination and having been already reached a preliminary agreement at the Council working party level. With a view to finalising the text and having it formally adopted by the Council before the end of 2013, the European Parliament must deliver its opinion early autumn.***

4.3. Co-sponsorship of IAEA Safety Standards

The Commission actively participated in the process for revision of the Inter-Agency Basic Safety Standards[119] with a view to its co-sponsorship. ***On 6 August 2012, the Commission***

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117 - Council Directive 96/29/Euratom of 13 May 1996, laying down basic safety standards for the health protection of the general public and workers against the dangers of ionising radiation (OJ L-159 of 29.06.1996, p.1),
- Council Directive 97/43/Euraotm of 30 June 1997 on health protection of individuals against the dangers ionising radiation in relation to medical exposure, and repealing Directive 84/466/Euratom (OJ L-357/Euratom of 09.07.1997, p. 22),
- Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency (OJ L-357 of 07.12.2989, p. 31),
- Council Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionising radiation during their activities in controlled areas (OJ L-349 of 13.12.1990, p.21),
- Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources (OJ L-346 of 31.12.2003).
- Commission Recommendation 90/143/Euratom of 21 February 1990 on the protection of the public against indoor exposure to radon (OJ L-80 of 27.03.1990, p.26)

118 Not published in the Official Journal, see http://ec.europa.eu/energy/nuclear/radiation_protection/doc/art31/2010_02_24_opinion_on_bss.pdf

119 International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, jointly sponsored by FAO, IAEA, ILO, OECD/NEA, PAHO, WHO, Safety Series No. 115, International Atomic Energy Agency, Vienna, 1996

adopted Decision C(2012)5311final on endorsement of the International Basic Safety Standards: Radiation Protection and Safety of Radiation Sources.

By this Decision the Commission, on behalf of European Atomic Energy Community, supports the publication of the revised International Basic Safety Standards: Radiation Protection and Safety of Radiation Sources, as a co-sponsored document and will promote the implementation of these International Basic Safety Standards within the framework of external relations of the European Atomic Energy Community.

The Commission through its Joint Research Centre, actively participated also to the revision of the IAEA General and Specific Safety Requirements which was initiated by the IAEA to incorporate the lessons learned from the Fukushima accident as part of the IAEA Action Plan on Safety.

4.4. Radioactive Waste and Spent Fuel Management

On 19 July 2011 the Council adopted the "Radioactive waste and spent fuel management Directive"[120]*, proposed by the Commission on 3 November 2010. The Directive, which came into force on 22 August 2011, obliges member states to establish a national legislative, regulatory and organizational framework covering all aspects of the management of spent fuel and radioactive waste from generation to final disposal. Member states are required to transpose the directive into their national legislation and inform the Commission of the relevant provisions before 23 August 2013.*

Within the national framework member states must prepare a national programme, which states amongst others; national policy together with plans for the implementation of the policy for the responsible and safe management of spent fuel and radioactive waste, including where appropriate plans for construction of national disposal facilities.

National programmes must be notified to the Commission not later than 23 August 2015. The Commission may request further information and even request changes where appropriate.

Also Member States must report on the implementation of the directive by 23 August 2015 and every three years thereafter. In this it is hoped to take advantage of the reporting timetable of the Joint Convention.

4.5. Registration of carriers of Radioactive Materials

In September 2012, the Commission adopted a Proposal for a Council Regulation establishing a Community system for registration of carriers of radioactive material[121]*. Discussions are on-going at the Atomic Question Group from the European Council.*

4.6. Shipments of radioactive waste and spent fuel

A first report on the implementation of the "Shipment Directive"[122] *was adopted by the Commission in April 2013*[123]*.*

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120 Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, OJ L199 of 2.8.2011, p. 48-55

121 COM(2012) 561 final

[122] Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel between Member States and into and out of the Community; OJ L337 of 5.12.2006 p 21-32.

[123] Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the implementation by the Member States of Council Directive 2006/117 EURATOM on the supervision and control of shipments of radioactive waste and spent fuels, COM (2013) 240 final, 25.4.2013.

SECTION III
IMPLEMENTATION OF THE CONVENTION
ARTICLE BY ARTICLE REVIEW

5. ARTICLE 6: EXISTING NUCLEAR INSTALLATIONS

Each Contracting Party shall take the appropriate steps to ensure that the safety of nuclear installations existing at the time the Convention enters into force for that Contracting Party is reviewed as soon as possible. When necessary in the context of this Convention, the Contracting Party shall ensure that all reasonably practicable improvements are made as a matter of urgency to upgrade the safety of the nuclear installation. If such upgrading cannot be achieved, plans should be implemented to shut down the nuclear installation as soon as practically possible. The timing of the shut-down may take into account the whole energy context and possible alternatives as well as the social, environmental and economic impact.[124]

Euratom does not possess or operate any nuclear installations as defined in Article 2(1) of the Convention. Such nuclear installations exist only in the territories of the Member States of the European Atomic Energy Community, to which the Euratom Treaty applies (see p. 16).

Council Directive 2009/71/Euratom on the establishment of a framework for the nuclear safety of nuclear installations applies to a range of nuclear installations that is wider than the one adopted in the Convention. This Directive applies to any civilian nuclear installation operating under a licence as defined in Article 3(4) at all stages covered by this licence (including the decommissioning stage). This means, the Nuclear Safety Directive applies to enrichment plants, nuclear fuel fabrication plants, nuclear power plants, reprocessing plants, research reactor facilities, spent fuel storage facilities and storage facilities for radioactive waste that are on the same site and are directly related to such nuclear installations listed above.

6. ARTICLE 7: LEGISLATIVE AND REGULATORY FRAMEWORK

(1) Each Contracting Party shall establish and maintain a legislative and regulatory framework to govern the safety of nuclear installations.

(2) The legislative and regulatory framework shall provide for:

i. The establishment of applicable national safety requirements and regulations;

ii. A system of licensing with regard to nuclear installations and the prohibition of the operation of a nuclear installation without a licence;

[124] Not applicable according to the Declaration of Competences (Annex 1). This means according to the revised Declaration of Competences (see Chapter 4 Statement of the Commitment of the Contracting Party to the Convention, p. 20 and Annex 1), which takes into account the Judgement 29/99 of the Court of Justice of the European Union (see Chapter 6.1.3, p. 57.

iii. A system of regulatory inspection assessment of nuclear installations to ascertain compliance with applicable regulations and the terms of licences;

iv. The enforcement of applicable regulations and the terms of licences.

This section summarizes the existing legislative system affecting the safety of nuclear installations in the Member States and includes statements with regard to the adequacy and effectiveness of that system.

6.1. Article 7(1) - The legislative and regulatory framework governing the safety of nuclear installations

This section introduces the legal system of the European Atomic Energy Community (hereinafter referred to as 'Euratom') and its relationship to the national laws of the Member States of the European Union. It gives an overview on the legislative procedure on the basis of the Euratom Treaty.

6.1.1. The Euratom Treaty

The Treaty establishing the European Atomic Energy Community (hereinafter: Euratom Treaty) provides the legal framework for the competencies and activities of the European Atomic Energy Community. The signatories of the Euratom Treaty stated in the Preamble to the Treaty that they were in particular:

- Anxious to create the conditions of safety necessary to eliminate hazards to the life and health of the public;
- Desiring to associate other countries with their work and to cooperate with international organisations concerned with the peaceful development of atomic energy.

These statements are in complete accordance with the objectives of the Convention, as set out in Article 1 thereof. In effect, this Article (read with Article 2 of the Convention, “Definitions”) focuses on the Convention’s objectives, which are threefold, that is:

- a high level of nuclear safety;
- protection from ionising radiation of the population and of the environment in the design, siting, construction and operation of nuclear installations and
- prevention of accidents and mitigation of the radiological consequences of such accidents.

There are three types of Euratom law: The primary source of law is the Euratom Treaty. The secondary sources of law are regulations, directives, decisions, recommendations and opinions on the basis of the Treaty issued by the EU Institutions (Commission or the Council). The final source of law is the case law including interpretation of treaties and institutional acts carried out by the Court of Justice of the European Union. The whole body of EU and Euratom law together is called the "*acquis communautaire*".

Under the institutional provisions of the Euratom Treaty, Euratom possesses its own mechanisms to control the compliance of the national laws of all Member States with the relevant Community legislation. This includes the possibility to accordingly obtain a decision by the Court of Justice of the European Union, based in Luxembourg.

The relationship between the legislation adopted by Euratom and the national legislation of the Member States of the European Union (hereinafter referred to as 'Union') is as follows according to Article 288 of the Treaty on the Functioning of the European Union (TFEU):

> *"To exercise the Unions competences, C* the institutions *shall* adopt *regulations, directives, decisions, recommendations or opinions.*
>
> *A regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States.*
>
> *A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods.*
>
> *A decision shall be binding in its entirety. A decision which specifies those to whom it is addressed shall be binding only upon them.*
>
> *Recommendations and opinions shall have no binding force."*

Member States must take all appropriate measures, whether general or particular, to ensure the fulfilment of the obligations arising out of the Euratom Treaty or resulting from action taken by the institutions of the Community. They have to facilitate the achievement of the Community's tasks and abstain from any measure which could jeopardize the attainment of the objectives of the Euratom Treaty (Art. 192 Euratom).

The organizational structures of Euratom and EC merged in 1967 by virtue of the Merger Treaty signed in 1965. With effect of 1 January 2010, Article 13 of the Treat of the European Union establishes the common institutional framework for both the European Union and Euratom. In accordance with Article 106a paragraph 1 of the Euratom Treaty, Articles 223 to 287of the Treaty on the Functioning of the European Union describe the methods, responsibilities and measures of the individual institutions which are available for both Euratom and the European Union with more detail.

With the Lisbon Treaty, the European Council[125] – commonly known as "EU Summit" – officially gains the status of an EU institution, thus being separated from the Council of Ministers or Council of the European Union. The European Councils task is to define the general political direction and priorities of the European Union. It is composed of the heads of state or government of the Union's Member States along with the (nonvoting) President of the Commission. The new position of a long-term (2 1/2 years term) President of the European Council has been introduced with the Lisbon Treaty to represent the European Union to third countries. The High Representative of the Union for Foreign Affairs and Security Policy has

[125] Articles 15 and 18 TEU and 235 to 236 TFEU

been established to a united position on EU policies. The conclusions of the European Council are referred to as "European Council Presidency Conclusions".

The Council[126] exercises the legislative and - together with the European Parliament - the budgetary functions, as well as policy-making and coordinating functions. It consists of the respective ministers of national governments of each Member State**.** The Council shares with the European Parliament only the responsibility for passing general EU laws and taking general EU policy decisions. Under the Euratom Treaty the Council only consults the European Parliament and then decides alone on the legislation proposed by the Commission, The Lisbon treaty has established the use of qualified majority voting in the Council as the ordinary voting procedure in almost every policy area[127]. Such legislative procedural meetings that include debate and voting in the Council of Ministers must now be held in public (televised). The Council meets in different configurations and is assisted by the General Secretariat. Each Member State presides over the Council for a six-month period. In addition a "Triple Presidency" is formed by three consecutive Presidencies in order to provide more continuity to their conduct.

The Members of the European Parliament[128] represent the citizens of the EU Member States. They are elected by direct universal suffrage for five years. The plenary sessions of the Parliament are held in Strasbourg, others in Brussels. Together with the Council of the European Union it exercises legislative and budgetary functions and functions of political control and consultation. In the framework of the Euratom Treaty, however, the Parliament has only a consultative role. Though, Parliament and Council share responsibility for approving the EU annual budget.

The Commission[129] is responsible for promoting the general interest of the Union and take appropriate initiatives to this end. It ensures the application of the Treaties and of measures adopted by the institutions. As the "Guardian of the Treaties" it oversees the control of Union and Euratom law under the control of the Court of Justice of the European Union, by initiating proceedings against Member States which did not implement Euratom law. It executes the budget and manages and has coordinating, executive and management functions. In its role as the manager and executor of common policies and of international trade relationships the Commission manages the EU budget, implements the agreed policies and programmes of the Communities, ensures the external representation of the EU and Euratom (with the exception of the common foreign and security policy) and negotiates external agreements with other

126 Articles 16 TEU and 237 to 243 TFEU

127 Taking effect in 2014, the definition of a qualified majority will change: A qualified majority is reached when at least 55% of all member states, who comprise at least 65% of EU citizens, vote in favour of a proposal. When the Council of Ministers is acting on a proposal neither of the Commission nor of one of the High Representative QMV requires 72% of the member states while the population requirement remains the same. To block legislation, at least 4 countries (representing at least 35% of the EU population) have to vote against the proposal. Hence, the voting powers of the member states are based on their population, and are no more dependent on a negotiable system of voting points. The current rules for QMV, as set in the Treaty of Nice, require a majority of countries (50% / 67%),voting weights (74%), and population (62%). This rule remains in place until 2014. Between 2014 and 2017 a transitional phase will take place where the new QMV rules apply, but where the old Nice treaty voting weights can be applied when a member state wishes so. Moreover, from 2014 a new version of the 1994 "Ioannina Compromise" will take effect, which allows small minorities of EU states to call for re-examination of EU decisions.

128 Articles 14 TEU and 223 to 234 TFEU

129 Articles 17 TEU and 244 to 250 TFEU

countries on behalf of the EU. According to the Euratom Treaty, the Commission concludes also international agreements (Art. 101 Euratom). The Commission is independent of national governments and represents and upholds the interests of the Communities as a whole. In carrying out its duties the Commission is responsible to the European Parliament. While the Council and the Parliament may request legislation, the Commission is the only body that can formally propose new legislation. Having heard the opinion of consultative bodies provided for by the Euratom Treaty, the Commission presents the new proposals to the Council. Since the Lisbon Treaty, one million EU citizens, who are nationals of a significant number of Member States, may call directly on the Commission to bring forward an initiative of interest to them in an area of EU competence. This European Citizens' Initiative is one of the major innovations of the Treaty of Lisbon, aimed at increasing direct democracy in the European Union. Until the Council decides otherwise, every Member State may nominate one Commissioner. The 27 Commissioners together form the Commission, or so called 'College', the Commission decision making body.

The Court of Justice of the European Union[130], including the Court of Justice, the General Court and specialised courts, ensures that the law is observed in the interpretation and application of the Treaty on the European Union, the Treaty on the Functioning of the European Union, the Euratom Treaty and of the provisions laid down by the competent EU institutions. The Court of Justice has competence, inter alia, actions against Member States for failure to fulfil obligations, references for a preliminary ruling and appeals against decisions of the General Court. It adjudicates most commonly on matters of interpretation of European Union law, raised by:

- Claims by the Commission that a Member State has not implemented a EURATOM Directive or other binding legal requirement, in the framework of an infringement procedure.

- References from national courts in the EU Member States asking the Court of Justice questions about the meaning or validity of a particular piece of EU law. The Court of Justice gives its ruling on the interpretation of the law, which is binding on the national court.

The General Court rules in principle on applications for annulment or actions for failure to act brought by a Member State, an institution or natural or legal persons if they are directly and individually concerned.

The legislation procedure for acts of secondary law (regulations, directives, decisions, recommendations and opinions) is laid down in the Euratom Treaty itself. For matters related to radiation protection and safety relevant to this convention, the Commission receives guidance from a group of scientific experts established under Article 31 of the Euratom Treaty[131], which then gives rise to a Commission proposal for a Council Directive, Regulation, Decision or Recommendation. The proposal is submitted first to the Economic and Social Committee. Upon incorporation of all or a part of the observations of this Committee, the proposal is transmitted to the Council of the European Union, which has to consult the European Parliament before adoption. The European Parliament then may propose amendments to the Commission

130 Articles 19 TEU 251 to 281 TFEU

131 Group of Scientific Experts Referred to in Article 31 of the Euratom Treaty, Rules of Procedures, Art.31/2004 approved final version, 4 June 2004, http://ec.europa.eu/energy/nuclear/radioprotection/doc/art31/procedure_rules_en.pdf

proposal, which the Council may examine and take into consideration. In the end, under the terms of the Euratom Treaty, the act is adopted by a qualified majority by the Council.

Member States are obliged to transpose or implement the existing binding Euratom legislation within a certain period of time, as detailed in the Act itself. A directive needs to be transposed into national legislation; regulations and decisions are directly applicable in the Member States.

The Euratom Treaty provides for a number of mechanisms to ensure that the relevant legislation is complied with by all Member States.

Under Article 33 of the Euratom Treaty, *"each Member State shall lay down the appropriate provisions, whether by legislation, regulation or administrative action, to ensure compliance with the basic standards"* (paragraph 1), which cover, according to the case-law, comprehensive and systematic safety assessments in the sense of Article 14(I) of the Convention. To this extent, *"the Commission shall make appropriate recommendations for harmonizing the provisions applicable in this field in the Member States"*. Member States must notify to the Commission all national legislation in the areas covered by the Euratom Treaty, both

- before adoption, so that the Commission can formulate, as the case might be, appropriate recommendations in order harmonize the implementing national provisions throughout the European Union according to Article 33 of the Euratom Treaty and

- After adoption, so that the conformity of the final measures can be controlled.

Whenever the Commission in its role as "Guardian of the Treaties" considers that a Member State is being infringing the Euratom provisions, for example if a Member State did not transpose a directive into national law within the given deadline, the Commission requests information from the authorities of the Member State concerned and, if explanations are not satisfactory, it can initiate proceedings against Member States. A proceeding can imply lodging an application before the Court of Justice of the European Communities. If the Member State does not take the necessary measures to comply with the ruling of the Court of Justice, the Court can decide to impose a lump sum or penalty on the Member State. In case of urgency, the Commission is entitled to directly hold the Court of Justice (Article 38 of the Euratom Treaty)[132]; though this situation has never occurred.

The Commission controls the implementation in practice through verifications of the environmental monitoring facilities on the basis of Article 35 of the Euratom Treaty[133] and through the examination of plans for the disposal of radioactive waste submitted to the Commission for opinion on the basis of Article 37 of the Euratom Treaty[134].

In addition, the Commission contributes in achieving a high level of harmonization in Europe by (non-binding) actions including

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132 See Article 38 of the EURATOM Treaty.

133 See below chapter 14.2.5, Verification of environmental radiological surveillance facilities, p. 68

134 See chapter 16.1, Description of licensing process, including summary of laws, regulations and requirements relating to the siting of nuclear installations, p. 78

- Non-binding Commission Recommendations in the areas of the Euratom Treaty[135].

- Other non-binding guidance documents, such as

  – "Radiation Protection Series" Publications of the Commission;

  – Recommendations of Advisory Groups of the Commission [136]

6.1.2. Uniform Safety Standards to protect the health of workers and the general public

Article 2 of the Euratom Treaty states that in order to perform its task, the Community shall, as provided for in the Treaty, in particular, establish uniform safety standards to protect the health of workers and of the general public and ensure that they are applied.

Title Two, Chapter 3, Health and Safety, sets out a number of detailed provisions intended to establish, give effect and apply the basic standards mentioned in Article 2(b) of the Euratom Treaty. A substantial corpus of Euratom legislation[137] has been adopted and updated in the course of the years and is completed by a set of legal instruments of different binding nature, covering a wide range of aspects such as

- operational protection of workers (including outside workers) and population,
- natural radioactive sources,
- high activity sealed sources and orphan sources,
- emergency preparedness,
- ***nuclear safety,***
- medical applications,
- control and supervision of shipments of spent fuel and radioactive waste,
- as well as a number of regulations establishing provisions on the conditions governing imports of agricultural products originating in third countries following the accident at the Chernobyl nuclear power plant, aimed at safeguarding the health of consumers of such products.

The main instrument Council Directive 96/29/Euratom laying down basic safety standards for the health protection of the general public and workers against the dangers of ionising radiation is the central element of this legislation (hereafter "the Basic Safety Standards Directive")[138].

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135 See Annex 3.

136 See chapter 2.6 Experts Groups of the Commission , p. 34

137 See Annex 3.

138 Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation, Official Journey (hereinafter OJ) L-159 of 29.06.1996, p. 1.

6.1.3. EU framework for the nuclear safety of nuclear installations

Nuclear safety is and will remain an absolute policy priority for the EU.

As recognised by 'the European Court of Justice in its case-law[139], the Community shares competences, together with its Member States, in fields covered by the Convention on Nuclear Safety[140]. Furthermore, the Court of Justice recognised an intrinsic link between radiation protection and nuclear safety and declared that the provisions of Title two, Chapter 3 of the Euratom Treaty, related to health and safety (i.e. radiation protection), form a coherent whole conferring upon the Community powers of some considerable scope in order to protect the population and the environment against risks of nuclear contamination. In its landmark ruling the Case 29/99[141], the Court stated that "it is not appropriate, in order to define the Community's competencies, to draw an artificial distinction between the protection of the health of the general public and the safety of sources of ionising radiation." But the Court also declared that the tasks imposed on the Community by Article 2(b) of the Treaty to lay down uniform safety standards to protect the health of the population and of workers does not mean that, once such standards have been defined, a Member State may not provide for more stringent measures of protection.[142]

Consequently, the Council Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations[143] (hereinafter referred to as the 'Nuclear Safety Directive') was unanimously adopted by the Council on 25 June 2009, subsequent to a very large support expressed by the European Parliament and the European Economic and Social Committee.

The Nuclear Safety Directive creates a solid and flexible legal framework that defines basic obligations and principles governing nuclear safety throughout the EU. It is based on Chapter 3 of the Euratom Treaty, (articles 31 and 32) in order to achieve the objective established in Article 2b, which provides for the establishment of uniform safety standards to protect the health of workers and of the general public[144].

Title two, Chapter 3 of the Euratom Treaty has been used mainly as a legal basis for enacting legislation in the radiation protection field (see p 63.ff.). Article 30 f. of the Treaty provide for the establishment of basic standards within the Community for the protection of the health of workers and the general public against the dangers arising from ionizing radiations[145].

The provisions of Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation ('Basic Safety Standards Directive')[146] are complemented by

139 C-187/87 (1988 ECR p. 5013), C-376/90 (1992 ECR I-6153) and C-29/99 (2002 ECR I-11221)
140 OJ L 318, 11.12.1999, p. 21.
141 Judgement of 10 December 2002 in the Case C-29/99 (Commission of the European Communities v Council of the European Union), paragraph 82
142 Recitals (4) to (6), OJ L 172, 02/07/2009, p. 18
143 OJ L 172, 2.7.2009
144 First Recital, Nuclear Safety Directive 2009/71/Euratom, OJ L 172, 02/07/2009, p. 18.
145 Same as above
146 OJ L 159, 29.6.1996, p. 1.

more specific legislation[147]: Council Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency[148] established a framework for notification and provision of information to be used by the Member States in order to protect the general public in case of a radiological emergency. Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency[149] imposed obligations on the Member States to inform the general public in the event of a radiological emergency.[150]

The Nuclear Safety Directive supplements the basic standards referred to in Article 30 of the Euratom Treaty as regards the nuclear safety of nuclear installations and is without prejudice to the Basic Safety Standards Directive. It does not prevent Member States from taking more stringent safety measures in the subject-matter covered by this Directive, in compliance with Community law[151]. It is built upon the nuclear safety requirements of the Convention on Nuclear Safety and of the Safety Fundamentals[152] established by the IAEA. Furthermore, Member States should assess, where appropriate, the relevant fundamental safety principles set by the International Atomic Energy Agency , which should constitute a framework of practices that Member States should have regard to when implementing this Directive[153]. Thus, the EU becomes the first major regional nuclear actor to give binding legal force to these leading international nuclear safety instruments.

The Nuclear Safety Directive recognizes the principle of national responsibility, the principle of continuous improvement of nuclear safety, and the principle of prime responsibility of the licence holder for the nuclear safety of a nuclear installation under the supervision of its national competent regulatory authority. Licence holders are required to undertake systematic and verifiable safety assessments, including the verification of "defence-in-depth" measures. The Directive aims to enhance these principles and to reinforce the role and independence of the competent national regulatory authorities.[154]

The goal of the Nuclear Safety Directive is to maintain and promote the continuous improvement of nuclear safety and to ensure that at high level of nuclear safety is provide by EU Member States to protect workers and the general public against dangers arising from nuclear installations.

While the Member States have already implemented measures enabling them to achieve a high level of nuclear safety within the Community[155], the Nuclear Safety Directive requires Member States to establish and maintain a national legislative, regulatory and organisational framework governing the safety of nuclear installations. As stated in the recitals, Member State may decide on its energy mix in accordance with relevant national policies[156]. When developing the

147 Third Recital, OJ L 172, 02/07/2009, p. 18
148 OJ L 371, 30.12.1987, p. 76
149 OJ L 357, 7.12.1989, p. 31.
150 Seventh Recital, OJ L 172, 02/07/2009, p. 18
151 Article 2 (2), same as above
152 IAEA Safety Fundamentals: Fundamental safety principles, IAEA Safety Standard Series No. SF-1 (2006)
153 Thirteenth Recital, OJ L 172, 02/07/2009, p. 18.
154 Eighth Recital, same as above
155 Eleventh Recital, same as above
156 Ninth Recital, same as above

appropriate national framework under this Directive, national circumstances will be taken into account[157].

This framework should be improved when appropriate, taking into account: (i) Advances in nuclear technology, lessons learnt from operating experience and safety research; (ii) insights gained from safety analyses for operating nuclear installations; (iii) development of technology; and (iv) results of safety research. In addition, periodic safety assessments of their national framework and competent regulatory authorities shall be organised by the Member States, supplemented with international peer reviews, including the verification of "defence-in-depth" measures. In keeping with the commitment to maintain and improve safety, Member States should take those factors into account when extending their nuclear power programme or deciding to use nuclear power for the first time.[158]

By 22 July 2011, the then EU Member States of the Community were required to bring into force the laws, regulations and administrative provisions necessary to comply with the Directive.

The Directive also establishes a reporting system for the Member States. In this context, the Member States must submit a Report to the Commission on the implementation of the Nuclear Safety Directive for the first time by 22 July 2014 and every three years thereafter, taking into account the timing for reporting and regular review meetings under the IAEA Convention on Nuclear Safety. On the basis of the Member States′ reports, the Commission submits a report to the Council and the European Parliament on progress made with the implementation of this Directive.

Secondly, the Member States should report the outcomes of the international peer-reviews that they have the obligation to periodically invite, when such results are available, to the Member States and to the Commission.

6.2. Article 7(2) – requirements for the legislative and regulatory framework

6.2.1. Article 7(2) i – establishment of applicable national safety requirements and regulations

Article 4(1) of the Nuclear Safety Directive on the legislative, regulatory and organisational framework states that Member States shall establish and maintain a national legislative, regulatory and organisational framework (hereinafter referred to as the ‘national framework’) for nuclear safety of nuclear installations that allocates responsibilities and provides for coordination between relevant state bodies. The national framework must establish responsibilities for:

(a) the adoption of national nuclear safety requirements. The determination on how they are adopted and through which instrument they are applied rests with the competence of the Member States;

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157 Tenth Recital, same as above

158 Eighteenth Recital, same as above

(b) the provision of a system of licensing and prohibition of operation of nuclear installations without a licence;

(c) the provision of a system of nuclear safety supervision;

(d) enforcement actions, including suspension of operation and modification or revocation of a licence.

Furthermore, Member States must ensure that the national framework is maintained and improved when appropriate, taking into account operating experience, insights gained from safety analyses for operating nuclear installations, development of technology and results of safety research, when available and relevant.

6.2.2. Article 7(2) ii - system of licensing with regard to nuclear installations and the prohibition of the operation of a nuclear installation without a licence

The Member States are responsible for the establishment and maintenance of the national legislative, regulatory and organisational framework, which allocates responsibilities for the provision of a system of licensing and prohibition of operation of nuclear installations without a licence (Article 4(1) b of the Nuclear Safety Directive).[159]

Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation[160] requires that Member States shall require prior authorisation in particular for the operation and decommissioning of any facility of the nuclear fuel cycle and exploitation and closure of uranium mining.

Article 44 of the Directive

Operational protection of the population in normal circumstances from practices subject to prior authorization means all arrangements and surveys for detecting and eliminating the factors which, in the course of any operation involving exposure to ionizing radiation, are liable to create a risk of exposure for the population which cannot be disregarded from the radiation protection point of view. Such protection shall include the following tasks:

> (a) examination and approval of plans for installations involving an exposure risk, and of the proposed siting of such installations within the territory concerned, from the point of view of radiation protection;
>
> (b) acceptance into service of such new installations subject to adequate protection being provided against any exposure or radioactive contamination liable to extend beyond the perimeter, taking into account, if relevant, demographic, meteorological, geological, hydrological and ecological conditions;
>
> (c) examination and approval of plans for the discharge of radioactive effluents.

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159 See Article 4(1) of the Directive, as cited above under 6.2.1.

160 OJ L 159, 29.6.1996, p. 1.

These tasks shall be carried out in accordance with rules laid down by the competent authorities on the basis of the extent of the exposure risk involved.

6.2.3. Article 7(2) iii – system of regulatory inspection assessment of nuclear installations to ascertain compliance with applicable regulations and the terms of licences

The Member States are responsible for the establishment of the national framework, which must establish the responsibilities for the adoption of national nuclear safety requirements, the provision of a system of nuclear safety supervision and enforcement actions, including suspension of operation and modification or revocation of a licence (Article 4(1)a, c and d of the Nuclear Safety Directive).

6.2.4. Article 7(2) iv - enforcement of applicable regulations and the terms of licences

In addition to the national responsibility of Member States for the enforcement of national regulations and terms of licenses, it is the supranational nature of European law makes the Nuclear Safety Directive a milestone in international and regional nuclear law. The Directive attributes a number of powers to the Commission, and more importantly, to the Court of Justice of the European Union. The Commission as the Guardian of the Treaty and the measures taken by the institutions ensures that EU legislation is applied correctly by the Member States. It can start infringement procedures if not satisfied with a Member State's implementation of the Directive and refer the matter to the Court of Justice of the European Union. As a last resort the Court may impose a lump sum or penalty payment on the Member State, which fails to fulfil its obligations (Art. 143 Euratom Treaty, repealed by Lisbon Treaty and replaced by Article 260 of the Treaty on the Functioning of the European Union - TFEU).

6.3. Summary of laws, regulations and requirements affecting the safety of nuclear installations, the licensing system and the inspection, assessment and enforcement process

See Annex 3.

7. ARTICLE 8 OF THE CONVENTION: REGULATORY BODY

(1) Each Contracting Party shall establish or designate a regulatory body entrusted with the implementation of the legislative and regulatory framework referred to in Article 7, and provided with adequate authority, competence and financial and human resources to fulfil its assigned responsibilities.

(2) Each Contracting Party shall take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy.[161]

National responsibility of Member States for the nuclear safety of nuclear installations is the fundamental principle on which nuclear safety regulation has been developed at the international level, as endorsed by the Convention on Nuclear Safety. The Nuclear Safety

[161] Not applicable (according to the Declaration of Competences, Annex 1).

Directive aims to reinforce the role and the independence of the competent national regulatory authorities by building on their competencies. It recognises the fundamental principle that only independent and strong regulators can guarantee the safe operation of the nuclear installations in the EU.

7.1. Article 8(1) – Establishment of a Regulatory Authority

Article 5 of the Nuclear Safety Directive obliges Member States to establish a competent regulatory authority, which is equipped with the required legal power (=authority), human and financial resources[162].

A 'competent regulatory authority' is defined as an "authority or a system of authorities designated in a Member State in the field of regulation of nuclear safety of nuclear installations as referred to in Article 5."[163]. Member States must ensure education and training arrangements for all parties with staff having responsibilities relating to the nuclear safety[164]. This applies both to operators and to regulators.

7.2. Article 8(2) – "Independence" of regulatory authority

Article 5(2) of the Nuclear Safety Directive requires Member States to ensure that the competent regulatory authority is "functionally separate from any other body or organisation concerned with the promotion, or utilisation of nuclear energy, including electricity production, in order to ensure effective independence from undue influence in its regulatory decision making".

8. ARTICLE 9 OF THE CONVENTION: RESPONSIBILITY OF THE LICENCE HOLDER

Each Contracting Party shall ensure that prime responsibility for the safety of a nuclear installation rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility[165].

The prime responsibility of licence holders for nuclear safety, as endorsed by the Convention, is explicitly recognised by the Nuclear Safety Directive.

Art. 3 (5) of the Nuclear Safety Directive defines 'licence holder' as a legal or natural person having overall responsibility for a nuclear installation as specified in a licence. A. 'licence' is defined by any legal document granted under the jurisdiction of a Member State to confer responsibility for the siting, design, construction, commissioning and operation or decommissioning of a nuclear installation (Article 3(4) of Directive 2009/71/Euratom).

EU Member States are obliged to ensure that the prime responsibility for nuclear safety of a nuclear installation rests with the licence holder. This responsibility cannot be delegated (Article 6(1) of Directive 2009/71/Euratom). In Recital 8 of the Nuclear Safety Directive Member States are furthermore encouraged to enhance this principle of prime responsibility of

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162 See Article 5 (1) and (3) of the Safety Directive (Annex 4)
163 See Article 3(3) of the Safety Directive.
164 See Article 7 of the Safety Directive.
165 Not applicable according to the Declaration of Competences (Annex 1).

the licence holder for the nuclear safety of a nuclear installation under the supervision of its national competent regulatory authority.

9. ARTICLE 10 OF THE CONVENTION: PRIORITY TO SAFETY

Each Contracting Party shall take the appropriate steps to ensure that all organizations engaged in activities directly related to nuclear installations shall establish policies that give due priority to nuclear safety.[166]

Article 6 (4) of the Nuclear Safety Directive obliges Member States to ensure that the national framework in place requires licence holders to establish and implement management systems which give due priority to nuclear safety and are regularly verified by the competent regulatory authority.

10. ARTICLE 11 OF THE CONVENTION: FINANCIAL AND HUMAN RESOURCES

(1) Each Contracting Party shall take the appropriate steps to ensure that adequate financial resources are available to support the safety of each nuclear installation throughout its life.

(2) Each Contracting Party shall take the appropriate steps to ensure that sufficient numbers of qualified staff with appropriate education, training and retraining are available for all safety-related activities in or for each nuclear installation, throughout its life.[167]

The Nuclear Safety Directive in Article 5(3) obliges Member States to ensure that the competent regulatory authority is given the legal powers and human and financial resources necessary to fulfil its obligations in connection with the national framework described in Article 4(1) with due priority to safety. This includes the powers and resources to:

(a) require the licence holder to comply with national nuclear safety requirements and the terms of the relevant licence;

(b) require demonstration of this compliance, including the requirements under paragraphs 2 to 5 of Article 6;

(c) verify this compliance through regulatory assessments and inspections; and

(d) carry out regulatory enforcement actions, including suspending the operation of nuclear installation in accordance with conditions defined by the national framework referred to in Article 4(1) of Directive 2009/71/Euratom.

166 Not applicable according to the Declaration of Competences (Annex 1).
167 Not applicable according to the Declaration of Competences (Annex 1).

11. ARTICLE 12 OF THE CONVENTION: HUMAN FACTORS

Each Contracting Party shall take the appropriate steps to ensure that the capabilities and limitations of human performance are taken into account throughout the life of a nuclear installation.[168]

Article 6(5) of the Nuclear Safety Directive requires Member States to ensure that the national framework in place requires licence holders to provide for and maintain adequate financial and human resources to fulfil their obligations with respect to nuclear safety of a nuclear installation, laid down in Article 6 paragraphs 1 to 4 of the Directive. Furthermore, Article 7 concerning 'Expertise and skills in nuclear safety' holds that Member States shall ensure that the national framework in place requires arrangements for education and training to be made by all parties for their staff having responsibilities relating to the nuclear safety of nuclear installations in order to maintain and to further develop expertise and skills in nuclear safety.

12. ARTICLE 13: QUALITY ASSURANCE

Each Contracting Party shall take the appropriate steps to ensure that quality assurance programmes are established and implemented with a view to providing confidence that specified requirements for all activities important to nuclear safety are satisfied throughout the life of a nuclear installation.[169]

Not applicable.

13. ARTICLE 14: ASSESSMENT AND VERIFICATION OF SAFETY

Each Contracting Party shall take the appropriate steps to ensure that:

(1) Comprehensive and systematic safety assessments are carried out before the construction and commissioning of a nuclear installation and throughout its life. Such assessments shall be well documented, subsequently updated in the light of operating experience and significant new safety information, and reviewed under the authority of the regulatory body;

(2) Verification by analysis, surveillance, testing and inspection is carried out to ensure that the physical state and the operation of the nuclear installation continue to be in accordance with its design, applicable national safety requirements, and operational limits and conditions.

13.1. Article 14 (1) - Safety assessments

Nuclear safety assessments carried out in installations based in the EU Member States are a responsibility of the Member State where the installation is based. Council Directive 2009/71/Euratom requires regular nuclear safety supervision, carried out by the regulatory authority and the licence holder throughout the whole lifetime of nuclear installations (Article

168 Not applicable according to the Declaration of Competences (Annex 1).
169 Not applicable according to the Declaration of Competences (Annex 1)

5(3) a, b, c, d). Member States must ensure that the national framework in place requires licence holders, under the supervision of the competent regulatory authority, to regularly assess and verify and continuously improve, as far as reasonably achievable, the nuclear safety of their nuclear installations in a systematic and verifiable manner (Article 6(2)). These assessments must include verification that measures are in place for prevention of accidents and mitigation of consequences of accidents, including verification of the physical barriers and licence holder's administrative procedures of protection that would have to fail before workers and the general public would be significantly affected by ionising radiations (Article 6(3)).

In order to strengthen the powers of European regulatory authorities, the Directive provides for extended regulatory powers in the interest of safety, by clearly spelling out their right to suspend the operation of a nuclear installation, if safety cannot be fully guaranteed. These internal verifications should be supplemented with periodic international peer reviews of the relevant segments of the Member States' national nuclear safety frameworks and/or their authorities.

Council Directive 2011/70/Euratom requires licence holders, under the regulatory control of the competent regulatory authority, to regularly assess, verify and continuously improve, as far as is reasonably achievable, the safety of the radioactive waste and spent fuel management facility or activity in a systematic and verifiable manner. This shall be achieved through an appropriate safety assessment, other arguments and evidence. The extent of the safety demonstration shall be commensurate with the complexity of the operation and the magnitude of the hazards associated with the radioactive waste and spent fuel, and the facility or activity. The licensing process shall contribute to safety in the facility or activity during normal operating conditions, anticipated operational occurrences and design basis accidents. The Directive provides for extended regulatory powers, such e.g. enforcement actions, including the suspension of activities and the modification, expiration or revocation of a licence together with requirements, if appropriate, for alternative solutions that lead to improved safety. In addition, there are obligations for international peer reviews of the national framework, competent regulatory authority and/or national programme with the aim of ensuring that high safety standards are achieved in the safe management of spent fuel and radioactive waste.

13.2. Article 14(2) - Verification programmes

Licence holders are required to undertake systematic and verifiable safety assessments. Nuclear safety verification programmes carried out in installations based in the EU Member States are a responsibility of the Member State where the installation is based. This principle of national responsibility for nuclear safety assessment is also confirmed in the Council Directive 2009/71/Euratom (see p. 57 above).

14. ARTICLE 15 - RADIATION PROTECTION

Each Contracting Party shall take the appropriate steps to ensure that in all operational states the radiation exposure to the workers and the public caused by a nuclear installation shall be kept as low as reasonably achievable and that no individual shall be exposed to radiation doses which exceed prescribed national dose limits.

14.1. Summary of laws, regulations and requirements dealing with radiation protection as applied to nuclear installations[170]

Article 2(b) of the Euratom Treaty requires Euratom to establish uniform safety standards to protect the health of the workers and of the general public and to ensure that they are applied. Article 218 of the Treaty underlines the importance for Euratom of the basic standards as these had to be determined within one year of the entry into force of the Treaty. They were first established in 1959 and the current safety standards are set out in Council Directive 96/29/Euratom of 13 May 1996 (Basic Safety Standards).

The Directive follows the 1990 Recommendation of the International Commission on Radiological Protection (ICRP) and is consistent with the International Basic Safety Standards for Protection against Ionising Radiation and for the Safety of Radiation Sources sponsored and issued by the International Atomic Energy Agency and jointly sponsored by other five International Organisations with competence in radiation protection.

14.2. Implementation of applicable laws, regulations and requirements relating to radiation protection

14.2.1. Radiation dose limits

As regards dose limitation, the Basic Safety Standards Directive sets out dose limits for exposed workers, for apprentices and students and for members of the public. The relevant Articles of the Directive are follows:

"Article 9 – Dose limits for exposed workers

(1) The limit on effective dose for exposed workers shall be 100 millisieverts ('mSv') in a consecutive five-year period, subject to a maximum effective dose of 50 mSv in any single year. Member States may decide an annual amount.

(2) Without prejudice to paragraph 1:

(a) the limit on equivalent dose for the lens of the eye shall be 150 mSv in a year;

(b) the limit on equivalent dose for the skin shall be 500 mSv in a year. This limit shall apply to the dose average over any area of 1 cm2, regardless of the area exposed;

(c) the limit on equivalent dose for the hands, forearms, feet and ankles shall be 500 mSv in a year."

"Article 11 –Dose limits for apprentices and students

(3) The dose limits for apprentices aged 18 years or over and students aged 18 years or over who, in the course of their studies, are obliged to use sources shall be the same as the dose limits for exposed workers laid down in Article 9.

[170] See Annex 3

(4) The limit for effective dose for apprentices aged between 16 and 18 years and for students aged between 16 and 18 years who, in the course of their studies, are obliged to use sources shall be 6 mSv per year.

Without prejudice to this dose limit:

(a) the limit on equivalent dose for the lens of the eye shall be 50 mSv in a year;

(b) the limit on equivalent dose for the skin shall be 150 mSv in a year. This limit shall apply to the dose average over any area of 1 cm2, regardless of the area exposed;

(c) the limit on equivalent dose for the hands, forearms, feet and ankles shall be 150 mSv in a year.

(5) The dose limits for apprentices and students who are not subject to the provisions of paragraphs 1 and 2 shall be the same as the dose limits for members of the public specified in Article 13."

"Article 13 – Dose limits for members of the public

(6) Without prejudice to Article 14, the dose limits for members of the public shall be as laid down in paragraphs 2 and 3.

(7) The limit for effective dose shall be 1 mSv in a year. However, in special circumstances, a higher effective dose may be authorised in a single year, provided that the average over five consecutive years does not exceed 1 mSv per year.

(8) Without prejudice to paragraph 2:

(a) the limit on equivalent dose for the lens of the eye shall be 15 mSv in a year;

(b) the limit on equivalent dose for the skin shall be 50 mSv in a year averaged over any 1 cm2 area of skin, regardless of the area exposed."

14.2.2. Fulfilment of conditions for the release of radioactive materials

As regards practices involving a risk from ionising radiation for the population, Article 43 and Article 44 of the Basic Safety Standards Directive require Member States to apply the fundamental principles governing operational protection of the population. In particular, Article 44 states:

> "Operational protection of the population means all arrangements and surveys for detecting and eliminating the factors which, in the course of any operation involving exposure to ionising radiation, are liable to create a risk of exposure for the population which cannot be disregarded from the radiation protection point of view. Such protection shall include the following tasks:
>
> (a) examination and approval of plans for installations involving an exposure risk, and of the proposed siting of such installations within the territory concerned, from the point of view of radiation protection;

(b) acceptance into service of such new installations subject to adequate protection being provided against any exposure or radioactive contamination liable to extend beyond the perimeter, taking into account, if relevant, demographic, meteorological, geological, hydrological and ecological conditions;

(c) examination and approval of plans for the discharge of radioactive effluents.

These tasks shall be carried out in accordance with rules laid down by the competent authorities on the basis of the extent of the exposure risk involved".

14.2.3. Steps taken to ensure that radiation exposures are kept as low as reasonably achievable

Optimisation (ALARA) Principle: The general principles of radiation protection: justification, optimisation and dose limitation are mandatory under Article 6 of the Basic Safety Standards Directive. In particular, as regards optimisation, Article 6 paragraph 3a reads:

"Each Member States shall ensure that, in the context of optimisation, all exposures shall be kept as low as reasonably achievable, economic and social factors being taken into account."

14.2.4. Estimates and records of population doses

Article 49 of the Basic Safety Standards Directive requires Member States to consider the possibility of radiological emergencies from practices subject to the Directive, and to assess the distribution of the radioactive substances dispersed and corresponding potential exposures.

14.2.5. Verification of environmental radiological surveillance facilities

In line with the implementation of Article 14 (ii) of the Convention, Article 35 of the Euratom Treaty stipulates:

"Each Member State shall establish the facilities necessary to carry out continuous monitoring of the level of radioactivity in the air, water and soil and to ensure compliance with the basic standards.

The Commission shall have the right of access to such facilities; it may verify their operation and efficiency."

The result of the checks carried out by the Member States under Article 35 of the Euratom Treaty are periodically communicated to the Commission under Article 36 of the Treaty. Commission Recommendations 2000/473/Euratom[171] and 2004/2/Euratom[172] aim at ensuring uniformity, comparability, transparency and timeliness of the data reported, respectively for levels of radioactivity in the environment and for discharges of radioactive effluent. The Commission regularly publishes summaries of the data reported by Member States[173]. It also exercises its right of access conferred on it by Article 35 of the Euratom Treaty.

171 OJ L-191 of 17.07.2000 p. 37.
172 OJ L 2 of 6.1.2004, p. 36.
173 See http://ec.europa.eu/energy/nuclear/radiation_protection/article_35_en.htm.

Taking into account previous bilateral protocols, a Commission Communication has been published in the Official Journal on 4 July 2006[174] with a view to define some practical arrangements for the conduct of "Article 35 verification visits" in Member States. These may be amended as needed.

The primary objective of the "Article 35 verifications" is to establish the efficiency of the facilities installed for the measurement of environmental radioactivity and of radioactive discharges, and to establish the adequacy of the environmental monitoring programme. The efficiency and adequacy are assessed in relation to the overall approach developed at national level to ensure the protection of members of the public in compliance with the Basic Safety Standards[175].

Verifications are initiated:

- where and when the Commission estimates it to be appropriate
- on request (invitation) of national authorities
- on request of the European Parliament
- on request of a Member State (to verify a neighbouring Member State)

The arrangements for the conduct of verification has been discussed with Member States and laid down in bilateral protocols. Verifications may extend to all installations discharging radioactive substances into the environment such as:

- nuclear fuel cycle installations (mainly power stations and reprocessing facilities)
- research reactors,
- radioactive isotope production facilities,
- users of radioactive isotopes (i.e. hospitals),
- Naturally Occurring Radioactive Material (henceforth: NORM) industries discharging effluents containing enhanced levels of natural radioactivity.

Verification activities cover all facilities and provisions for monitoring/sampling of:

- discharges of radionuclides into the environment (airborne and liquid effluents)
- environmental radioactivity around installations discharging radionuclides;
- environmental radioactivity as part of a national network (regional, national level).

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174 Verification of environmental radioactivity monitoring facilities under the terms of Article 35 of the Euratom Treaty - Practical arrangements for the conduct of verification visits in Member States (2006/C 155/02), OJ C-155 of 04.07.2006 p. 2.

175 Council Directive 80/836/EURATOM, amended by Council Directive 84/467/Euratom, and replaced by Council Directive 96/29/EURATOM, see above.

Environmental monitoring includes:

- routine measurement of radioactivity in air, water, soil and biota;
- provisions in case of radiological emergencies (alarms and data collection, but not emergency response planning)

Verification activities basically cover:

- Monitoring/sampling devices (operation and efficiency)
- Monitoring/sampling procedures (methodologies and representativeness).
- Data handling and management procedures (reporting and archiving).
- Consistency of source data (operational records) with values reported under Articles 36 and 37 of the Euratom Treaty.
- Quality control and assurance programmes applied to the above fields of activity (working instructions, peer review, inter-comparison and accreditation).

Since 1999, about ***48*** verification reports under the terms of Article 35 of the Euratom Treaty have been made publicly available with consent of the competent authorities of the Member States concerned[176]. The official results of a verification visit are laid down in a document referred to as the Main Findings. A Technical Report is annexed to it. The Main Findings are based on the observation and recommendations listed in the Technical Report, but without technical detail.

Data reporting under Article 36 also encompasses information on the discharge of radioactive effluents. Nuclear sites, in particular nuclear power stations and reprocessing sites, may discharge airborne and liquid radioactive effluents into the environment on condition that these discharge operations abide by regulatory conditions and restrictions as defined in the their respective operating licenses. It is a recognised practice in the framework of Article 35 verifications[177] that the environment starts where radioactive discharges leave operational control i.e. at the last measurement points that quantify these discharges. Consequently these discharge measurement points are deemed to be environmental monitoring devices, the results of which shall be communicated to the Commission. In 2004 the Commission issued Recommendation 2004/2/Euratom providing guidance to Member States as to this type of reporting. The Commission's RAdioactive Discharges Database (RADD), publicly accessible on the EUROPA web site (http://europa.eu/radd/), presents airborne and liquid radioactive discharge data from nuclear power stations (with a capacity greater than 50 MWe) as well as from nuclear fuel reprocessing sites. In order to provide a useful time span the database contains information from 1995 onwards. For new Member States, information is present starting from the respective accession years: 2004 or 2007.

176 http://ec.europa.eu/energy/nuclear/radioprotection/verification_en.htm

177 Commission Communication "Verification of environmental radioactivity monitoring facilities under the terms of Article 35 of the Euratom Treaty — Practical arrangements for the conduct of verification visits in Member States", OJ C55 of 04.07.2006, p. 2–5

14.2.6. Regulatory control activities

Not applicable.

15. ARTICLE 16 - EMERGENCY PREPAREDNESS

(1) Each Contracting Party shall take the appropriate steps to ensure that there are on-site and off-site emergency plans that are routinely tested for nuclear installations and cover the activities to be carried out in the event of an emergency.

For any new nuclear installation, such plans shall be prepared and tested before it commences operation above a low power level agreed by the regulatory body.

(2) Each Contracting Party shall take the appropriate steps to ensure that, insofar as they are likely to be affected by a radiological emergency, its own population and the competent authorities of the States in the vicinity of the nuclear installation are provided with appropriate information for emergency planning and response.

(3) Contracting Parties which do not have a nuclear installation on their territory, insofar as they are likely to be affected in the event of a radiological emergency at a nuclear installation in the vicinity, shall take the appropriate steps for the preparation and testing of emergency plans for their territory that cover the activities to be carried out in the event of such an emergency.

The primary responsibility of protecting the general public in the event of a nuclear or radiological emergency lies with the Member State authorities; however Euratom has competences to establish legislation regarding emergency preparedness and emergency response. In addition, the Commission contributes in this work by initiating and participating in international systems for radiological emergency preparedness.[178]

The Union Civil Protection Mechanism has continued to contribute to reinforcing Europe preparedness to nuclear incident. Two key instruments in force today in this area for civil protection at European level are the Council Decision 2001/792/EC, Euratom, of 23 October 2001 establishing a Community mechanism to facilitate reinforced cooperation in civil protection assistance interventions, recast by Council Decision 2007/779/EC, Euratom, establishing a Community Civil Protection Mechanism and Council Decision 2007/162/EC, Euratom, of 5 March 2007 establishing a Civil Protection Financial Instrument, which provides the framework for financial assistance to be given, both as a contribution to improving the effectiveness of response to major emergencies and to enhance preventive and preparedness measures for all kinds of emergencies.

After a comprehensive evaluation of the Civil Protection legislation and building on lessons learnt from past emergencies, the Commission, taking into account the provisions on civil protection in the Lisbon Treaty and in particular Article 196 thereof, adopted on 20 December 2011 a legislative proposal for a Decision of the European Parliament and the Council on a Union Civil Protection Mechanism COM (2011) 934 final. In 2012, the proposal is negotiated at the European Parliament and the Council in view of its adoption in 2013.

[178] See Chapter 15.3 International arrangements, including those with neighbouring countries, p. 76.

The aim is to support, coordinate and supplement the actions of the Member States in the field of civil protection in improving the effectiveness of systems for preventing, preparing for and responding to natural and man-made disasters of all kinds within and outside the Union. Specific objectives include (a) to achieve a high level of protection against disasters by preventing or reducing their effects and by fostering a culture of prevention (b) to enhance the Union's state of preparedness to respond to disasters (c) to facilitate rapid and efficient emergency response interventions in the event of major disasters.

The Commission follows an all-hazard approach, including preparedness and response measures related to nuclear /radiological emergencies.

As regards preparedness, as part of the EU CBRN Action Plan, a European CBRN resilience programme in civil protection is undertaken by the Commission DG Humanitarian Aid and Civil Protection, which focuses on training, workshops, exercises and promoting interoperability between MS' response capacities. Large scale CBRN European exercises have been regularly organised the European Civil Protection Mechanism and co-financed by the European Civil Protection Financial Instrument.

The inter-operability of Member States' disaster response capabilities has been greatly improved through the development of pre-defined civil protection "modules" for which the main types of response capacities minimum conditions have been defined and agreed at EU level. In the field of CBRN, the Member States have registered at European level a number of CBRN detection and sampling modules and Urban Search and Rescue modules capable of working in CBRN conditions. Exercises for modules are also conducted European Civil protection Mechanism and financed under the European Financial Instrument.

As regards response to emergencies, at any time an affected state can turn to the EU Civil Protection Mechanism for expert support and assistance. The European Civil Protection Mechanism offers a framework for the mobilisation of Participating States' assistance in response to such emergencies that overwhelm the response capacities of individual states. Any Member State or third country affected by natural and man-made disasters, including nuclear or radiological events, can make a request for in-kind assistance (teams and means) to the Commission's Emergency response centre (MIC / ERC), which will then facilitate the coordination and deployment of Participating States' offers of assistance.

The European Civil Protection Mechanism was activated following the request of assistance issued by the Japanese authorities in March 2011 to support with a total of 400 tons of in-kind assistance the Japanese emergency relief efforts after the Fukushima nuclear accident.

15.1. General description of laws, regulations and requirements for on-site and off-site emergency preparedness

15.1.1. Council Directive 96/29/Euratom – "Basic Safety Standards Directive (BSS)"

Article 50 of the Basic Safety Standards Directive, on “Intervention preparation”, provides as follows:

> “1. Each Member State shall ensure that account is taken of the fact that radiological emergencies may occur in connection with practices on or outside its territory and affect it.

2. Each Member State shall ensure that appropriate intervention plans, taking account of the general principles of radiation protection for intervention referred to in Article 48 (2) and of the appropriate intervention levels established by the competent authorities, are drawn up at national or local level, including within installations, in order to deal with various types of radiological emergency and that such plans are tested to an appropriate extent at regular intervals.

3. Each Member State shall ensure, where appropriate, that provision is made for the creation and appropriate training of special teams for technical, medical and health intervention.

4. Each Member State shall seek to cooperate with other Member States or non-Member States in relation to possible radiological emergencies at installations on its own territory which may affect other Member States or non-Member States, in order to facilitate the organization of radiological protection in these States."

15.1.2. Council Directive 89/618/Euratom on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency

Council Directive 89/618/Euratom[179] deals with informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency.

The Directive specifies two types of information that has to be given to the members of the public:

- Prior information to be given to the population groups for which Member States have drawn up intervention plans in the event of a radiological emergency;

- Information in the event of a radiological emergency, to be given to the population groups actually affected in the event of a radiological emergency and for which specific protection measures are taken.

The Directive also requires that emergency workers regularly undergo medical surveillance and are informed about their health. In 1991 the Commission adopted a Communication on information for the implementation of Articles 5 and 6 of Council Directive 89/618/Euratom.[180]

15.1.3. Council Decision 87/600/Euratom on Community arrangements for the early exchange of information in the event of a radiological emergency

Council Decision 87/600/Euratom sets out arrangements for the early exchange of information between competent authorities in the event of a radiological emergency (ECURIE). These arrangements "apply to the notification and provisions of information whenever a Member State decides to take measures of a wide-spread nature in order to protect the general public in case of a radiological emergency" (Article 1 of the Decision). A radiological emergency may be declared either due to an accident at a facility where a significant release of radioactive material

179 OJ L 357, 07.12.1989, p 31
180 OJ C 103, 19.04.1991, p 12–16.

occurs or is likely to occur, or due to detection of abnormal levels of radioactivity in the environment.

Article 2(i) of this Decision sets out the actions to be taken by the Member State that initially decides to take measures as referred to in Article 1 of this Decision as follows:

> *(a) Forthwith notify the Commission and those Member States which are, or are likely to be, affected of such measures and the reasons for taking them;*
>
> *(b) Promptly provide the Commission and those Member States which are, or are likely to be, affected with available information relevant to minimising the foreseen radiological consequences, if any, in those States.*

Member States notify their "intention to take without delay measures as referred to in Article 1". The Decision also specifies the nature of the information that shall be provided and requires that the initial information is supplemented at appropriate intervals. The Commission makes available the information it receives from a Member State to all the Member States. The Decision applies to the Member States of Euratom. It also applies to Switzerland and ***FYROM*** following an agreement between Euratom and these Countries. The Decision is broadly compatible with the Convention on Early Notification of a Nuclear Accident, as demonstrated by several exercises carried out in co-operation with the IAEA and the States participating in such exercises.

15.1.4. Regulations laying down maximum permitted levels of contamination (for future accidents)

A set of Euratom regulations[181] lay down maximum permitted levels of radioactive contamination of foodstuffs and feeding stuffs following a nuclear accident or any other case of radiological emergency. These pre-established maximum permitted levels can be made immediately applicable through the adoption of a regulation by the Commission if the latter receives official information about an accident through the ECURIE system (Council Decision 87/600/Euratom) indicating that these levels are likely to be reached or have been reached.[182]

15.2. Implementation of emergency preparedness measures, including the role of the regulatory body and other entities

15.2.1. Classification of emergency situations

Not applicable.

15.2.2. Overall emergency preparedness scheme

Not applicable.

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[181] Council Regulation No 3954/87 of 22 December 1987, OJ L-371 of 30.12.1987 p. 11, as amended by Council Regulation No 2218/89 of 18 July 1989, OJ L-211 of 27.07.1989 p. 1; Commission Regulation No 770/90 of 29 March 1990, OJ L-83 of 29.03.1990 p. 78; Commission Regulation No 944/89 of 12 April 1989, OJ L-101 of 13.04.1989 p. 17; Council Regulation No 2219/89 of 18 July 1989, OJ L-211 of 22.07.1989 p.4.

[182] See Annex 3

15.2.3. On-site and off-site emergency plans of research reactors, including supporting agencies and schemes

Not applicable.

15.2.4. Measures for informing the public about emergency preparedness in the vicinity of the nuclear installations

Not applicable.

15.2.5. Conduct of emergency exercises

The Commission organises radiological emergency preparedness exercises within the ECURIE (European Community Urgent Radiological Information Exchange) system.

The ECURIE system may on request also be used as an information tool for national exercises, when time and staff issues permit.

In addition, the Commission participates in selected international exercises organised by the Member States, the OECD-NEA or the IAEA such as the ConvEx or the INEX series using the possibilities of the ECURIE system as well as - if deemed necessary - the activation of the radiation protection unit's emergency team. The ConvEx series ranges from tests of reaching the contact point to full scale exercises with a hypothetical large accident scenario, somewhere in the world. The INEX series was mainly a tool to help develop/enhance appropriate systems for emergency preparedness on national and international level.

15.3. International arrangements, including those with neighbouring countries

15.3.1. ECURIE (European Community Urgent Radiological Information Exchange)

ECURIE is a 24h emergency notification and information exchange system. The system notifies the competent authorities of the participating States (currently EU Member States, Switzerland and ***FYROM***) and the Commission in case of a major nuclear accident or a radiological emergency. During an emergency the system provides an information exchange platform for the participating States in order to inform about the current and foreseeable status of the accident, meteorological conditions, national countermeasures taken, etc.

The legal basis for participation in ECURIE by the EU Member States is the EU Council Decision 87/600/Euratom and the Agreement between Euratom and non-member States of the European Union on the participation of the latter in the Community arrangements for the early exchange of information in the event of radiological emergency (ECURIE)[183]. The Commission is responsible for ECURIE management and development. The Commission maintains a 24h preparedness service in order to activate the system in the event of a nuclear or radiological emergency[184]. There is an ongoing discussion between IAEA and EC services on the issue of having one technical system for the EC/MS for notification purposes which would deal with ECURIE messages as well as the IAEA's Emercon messages.

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183 OJ C 102 of 29.4.2003, p. 2.

184 For more information on the ECURIE system see http://rem.jrc.ec.europa.eu/40.html

15.3.2. EURDEP (EUropean Radiological Data Exchange Platform)

EURDEP is both a standard data format and a network for the exchange of environmental radiation monitoring data between European countries in real-time which is operated by Commission Joint Research Centre. Participation of the EU Member States is based on the Recommendation 2000/473/Euratom. Participation of the various non-EU countries is on a voluntary basis. Those countries that send their national radiological monitoring data have access to the data of all the other participating countries. The system is continuously operating with a daily data exchange routine and there is a general consensus that participating in the system automatically means that the data transmissions will continue during an emergency in an elevated frequency[185].

In 2009 IAEA and the Commission initiated a planning for providing EURDEP technology to the IAEA in order to facilitate global application of this technology by the IAEA.

15.3.3. ENSEMBLE

In case of a major radiological or nuclear accident affecting Europe, national long-range radioactivity dispersion forecasts will inevitably differ because of differences in national models, differences in weather prediction methods and differences in national emergency management strategies. Differences in national long-range dispersion forecasts may cause problems at the European level, as national emergency management strategies based solely on national forecasts may not cohere with those in neighbouring countries. ENSEMBLE is software that integrates the different weather forecasts (with the possibility to select preferred ones and also to look at specific national forecasts) and thus, with the input of radioactive release data, provides a relatively reliable prediction of the dispersion of radioactive substances with time. In this context the system addresses the issue of harmonisation and coherence of emergency management and decision-making in relation to long-range atmospheric dispersion modelling by providing a website tool to view and compare national dispersion forecasts.[186]

15.3.4. IACRNE

The Commission participates in the Inter-Agency Committee on Response to Nuclear Emergencies (IACRNE) and has concluded bilateral agreements with other international organisations on arrangements in the area of radiological emergency preparedness.

15.3.5. Other activities

Other radiological emergency preparedness activities in the Commission include training of national authorities, assistance to research activity co-ordination, regular preparedness exercises and co-operation with other international organisations and other Commission emergency services. Additionally the Commission provides an INES (the International Nuclear Event Scale) liaison officer and organises regular meetings of Member States radiological emergency preparedness authorities.

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185 For more information on the EURDEP system see http://rem.jrc.ec.europa.eu/175.html

186 For more information on the ENSEMBLE system see http://rem.jrc.ec.europa.eu/177.htm

16. ARTICLE 17 – SITING

Each Contracting Party shall take the appropriate steps to ensure that appropriate procedures are established and implemented:

i. For evaluating all relevant site-related factors likely to affect the safety of a nuclear installation for its projected lifetime;

ii. For evaluating the likely safety impact of a proposed nuclear installations on individuals, society and the environment;

iii. For re-evaluating as necessary all relevant factors referred to in sub-paragraphs (i) and (ii) so as to ensure the continued safety acceptability of the nuclear installation:

iv. For consulting Contracting Parties in the vicinity of a proposed nuclear installation, insofar as they are likely to be affected by that installation and, upon request providing the necessary information to such Contracting Parties, in order to enable them to evaluate and make their own assessment of the like safety impact on their own territory of the nuclear installation.

This section of the Report describes the relevant Euratom legislation, which affects the siting of a nuclear facility.

16.1. Description of licensing process, including summary of laws, regulations and requirements relating to the siting of nuclear installations

Under Article 37 of the Euratom Treaty, the Community possesses competence as regards 'any plan for the disposal of radioactive waste in whatever form' if the implementation of that plan is liable to result in the radioactive contamination of the water, soil or airspace of another Member State. That fact provides sufficient grounds to conclude that Euratom possesses competence in the field covered by Article 17 of the Convention.[187]

Article 44 of the Council Directive 96/29/Euratom - "Operational protection of the population in normal circumstances from practices subject to prior authorization means all arrangements and surveys for detecting and eliminating the factors which, in the course of any operation involving exposure to ionizing radiation, are liable to create a risk of exposure for the population which cannot be disregarded from the radiation protection point of view. Such protection shall include the following tasks:

(a) examination and approval of plans for installations involving an exposure risk, and of the proposed siting of such installations within the territory concerned, from the point of view of radiation protection;

(b) acceptance into service of such new installations subject to adequate protection being provided against any exposure or radioactive contamination liable to extend beyond the perimeter, taking into account, if relevant, demographic, meteorological, geological, hydrological and ecological conditions;

(c) examination and approval of plans for the discharge of radioactive effluents.

[187] C-29/99 ECJ 2002, I-11221, 102-103.

These tasks shall be carried out in accordance with rules laid down by the competent authorities on the basis of the extent of the exposure risk involved."

Council Directive 2009/71/Euratom contains only a reference to the licence holder's responsibility for siting, by defining the term “licence” as " any legal document granted under the jurisdiction of a Member State to confer responsibility for the siting, design, construction, commissioning and operation or decommissioning of a nuclear installation" (Art. 3(4) of Directive 2009/71/Euratom. In addition, Article 6(2) therein sets up a general obligation for licensees: "Member States shall ensure that the national framework in place requires licence holders, under the supervision of the competent regulatory authority, to regularly assess, verify and continuously improve, as far as reasonably achievable, the safety of their nuclear installations in a systematic and verifiable manner."

16.1.1. Criteria for evaluating all site-related factors affecting safety

There is no detailed applicable Euratom legislation in place which defines criteria for the siting of nuclear installations. The siting of a nuclear installation necessarily includes taking into account factors relating to radiation protection, such as the demographic characteristics of the site. It is apparent that Article 17(ii) of the Convention relates to those factors.

16.1.2. Criteria for evaluating the nuclear safety impact of the nuclear installations on the surrounding environment and population:

Not applicable

16.2. Implementing provisions for fulfilment of the above mentioned criteria

Not applicable

16.3. Activities relating to maintenance of the continued safety acceptability of the nuclear installation, taking account of site-related factors

Not applicable

16.4. International arrangements, including those with neighbouring countries, as necessary

Not applicable

17. ARTICLE 18 – DESIGN AND CONSTRUCTION

Article 18: Each Contracting Party shall take the appropriate steps to ensure that:

(a) The design and construction of a nuclear installation provides for several reliable levels and methods of protection (defence in depth) against the release of radioactive materials, with a view to preventing the occurrence of accidents and to mitigating their radiological consequences should they occur;

(b) The technologies incorporated in the design and construction of a nuclear installation are proven by experience or qualified by testing or analysis;

(c) The design of a nuclear installation allows for reliable, stable and easily manageable operation, with specific consideration of human factors and the man-machine interface.

This section of the Report describes the relevant Euratom legislation, which affects the design, construction and operation of a nuclear facility.

In this regard there is no detailed Euratom legislation in place. The design, construction and operation of nuclear installations lie within the competence of the national authorities. However, in its Judgement of 10 December 2002 the Court stated, that "*the measures required by Articles 18 and 19 of the Convention concerning the design, construction and operation of nuclear installations can be the subject of the provisions which the Member States lay down to ensure, in accordance with the first paragraph of Article 33 of the Euratom Treaty, compliance with the basic standards. However, the Commission has competence to make recommendations for harmonising those provisions, as is clear from the second paragraph of Article 33 of the Euratom Treaty, interpreted in the light of the considerations set out in paragraphs 75 to 83 of the present judgment. The Member States are required to assist in drawing up those recommendations through the communications referred to in the third paragraph of Article 33 of the Euratom Treaty*"[188].

Corresponding to Article 18 (1) of the Convention on Nuclear Safety, Council Directive 2009/71/Euratom provides in Article 6(3) that the safety assessments made by the licence holder "shall include verification that measures are in place for prevention of accidents and mitigation of consequences of accidents, including verification of the physical barriers and licence holder's administrative procedures of protection that would have to fail before workers and the general public would be significantly affected by ionizing radiations". This provision illustrates the fundamental principle of "defence-in-depth" that implies the setting up of more than one protective measure for a given safety objective.

Article 37 of the Euratom Treaty and its practical implementation as laid down in Commission Recommendation 2010/635/Euratom does directly affect national nuclear licensing processes.

Article 37 provides that "Each Member State shall provide the Commission with such general data relating to any plan for the disposal of radioactive waste in whatever form as will make it possible to determine whether the implementation of such plan is liable to result in the radioactive contamination of the water, soil or airspace of another Member State." and that "The Commission shall deliver their opinions on planned disposal of radioactive waste within six months, after consulting the group of experts referred to in Article 31."

The "disposal of radioactive waste" within the meaning of Article 37 covers any planned or accidental release into the environment of gaseous, liquid or solid radioactive substances.

The Member State should submit general data to the Commission whenever possible one year but not less than six months before the intended granting of a radioactive waste discharge authorisation or, before the intended start-up of a nuclear operation for which no such authorisation is foreseen. The Member State is not entitled to grant the discharge

188 C-29/99 ECJ 2002, I-11221, 102-103.

authorisation (or the start-up of an operation for which no such authorisation is foreseen) without the Commission having delivered its opinion on the submitted general data.

Commission opinions, since Article 37 is part of Chapter III of the Euratom Treaty on "Health and Safety", are in essence statements about the significance from the point of view of health of potential radioactive contaminations of the water, soil or airspace of another Member State (the potential trans-boundary radiological health impact of planned operations).

A non-binding Commission opinion under Article 37 is formally notified to the submitting Member State and is published in the Official Journal of the European Union. In the years 2010-2012, the Commission delivered thirty-four opinions.

The Commission periodically reports to Council and European Parliament on the application of Article 37 of the Euratom Treaty. The latest such document, that will cover the period January 2004 to December 2012, will be issued in the second half of 2013.

18. ARTICLE 19 – OPERATION

Article 19: Each Contracting Party shall take the appropriate steps to ensure that:

a) The initial authorisation to operate a nuclear installation is based upon an appropriate safety analysis and a commissioning programme demonstrating that the installation, as constructed, is consistent with design and safety requirements;

b) Operational limits and conditions derived from the safety analysis, tests and operational experience are defined and revised as necessary for identifying safe boundaries for operation;

c) Operation, maintenance, inspection and testing of a nuclear installation are conducted in accordance with approved procedures;

d) Procedures are established for responding to anticipated operational occurrences and to accidents;

e) Necessary engineering and technical support in all safety related fields is available throughout the lifetime of a nuclear installation;

f) Incidents significant to safety are reported in a timely manner by the holder of the relevant licence to the regulatory body

g) Programmes to collect and analyse operating experience are established, the results obtained and the conclusions drawn are acted upon and that existing mechanisms are used to share important experience with international bodies and with other operating organizations and regulatory bodies;

h) The generation of radioactive waste resulting from the operation of a nuclear installation is kept to the minimum practicable for the process concerned, both in activity

and in volume, and any necessary treatment and storage of spent fuel and waste directly related to the operation and on the same site as that of the nuclear installation take into consideration conditioning and disposal.

In this regard there is no detailed Euratom legislation in place. The design, construction and operation of nuclear installations lie within the competence of the national authorities. However, in its Judgement of 10 December 2002 the Court stated, that "the measures required by Articles 18 and 19 of the Convention concerning the design, construction and operation of nuclear installations can be the subject of the provisions which the Member States lay down to ensure, in accordance with the first paragraph of Article 33 of the Euratom Treaty, compliance with the basic standards. However, the Commission has competence to make recommendations for harmonising those provisions, as is clear from the second paragraph of Article 33 of the Euratom Treaty, interpreted in the light of the considerations set out in paragraphs 75 to 83 of the present judgment. The Member States are required to assist in drawing up those recommendations through the communications referred to in the third paragraph of Article 33 of the Euratom Treaty"[189].

This provision corresponds to the Article 4(2) of the Council Directive 2009/71/Euratom. Results of operating experience, insights gained from safety analyses for operating nuclear installations, development of technology and results of safety research, when available and relevant should be used by Member States for updating and improving their national nuclear safety framework.

[189] C-29/99 ECJ 2002, I-11221, 102-103.

“Declaration by the European Atomic Energy Community pursuant to Article 30 paragraph 4 (iii) of the Nuclear Safety Convention"

The following States are at present members of the European Atomic Energy Community: the Kingdom of Belgium, the Czech Republic, the Kingdom of Denmark, the Federal Republic of Germany, the Republic of Estonia, the Hellenic Republic, the Kingdom of Spain, the French Republic, Ireland, the Italian Republic, Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the Republic of Austria, the Republic of Poland, the Portuguese Republic, the Republic of Slovenia, the Slovak Republic, the Republic of Finland, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland.

The Community declares that Articles 1 to 5, Article 7 and Articles 14 to 35 of the Convention apply to it.

The Community possesses competences, shared with the abovementioned Member States, in the fields covered by Article 7 and Articles 14 to 19 of the Convention as provided for by the Treaty establishing the European Atomic Energy Community in Article 2(b) and the relevant Articles of Title II, Chapter 3, entitled "Health and Safety".

ANNEX 2

Rapporteur's' Report for EURATOM of 11 April 2011 in the 5th Review Meeting under the Convention on Nuclear Safety

(1) Highlights - Euratom

- EU Nuclear Safety Directive mandates MS to some of the CNS obligations and some of the IAEA Safety Fundamentals.
- On-going implementation of activities under the Instrument for Nuclear Safety Cooperation (formerly TACIS) (75 million Euros/year).
- Plans for the implementation of an EU wide Peer Review arrangement to meet the EU Nuclear Safety Directive.

(2) Good Practices

- The creation of a legally binding framework for nuclear safety applied to all EU member states, to move towards harmonisation of nuclear safety standards.

(3) Challenges

- ENSREG/Commission to define the scope of EU States' NPP "stress-tests" to be performed based on WENRA technical work, in relation to the Fukushima accident. The outcomes are to be made publically available.
- To invite and/or to encourage nearby states to apply similar "stress tests" to their NPPs.

ANNEX 3

List of the "*acquis communautaire*" on the basis of the Euratom Treaty
(new legal instruments in ***bold italics***)

1. Nuclear Safety

Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, Official Journal L 172, 2.7.2009.

2. Radioactive Waste

Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, OJ L 199 of 2.8.2011, p. 48–56.

3. Radiation protection

Commission Recommendation 2010/635/Euratom of 11 October 2010 on the application of Article 37 of the Euratom Treaty, Official Journal L-279 of 11.10.2010, p. 36.

Communication 2006/C/155/02 from the Commission *on Verification of environmental radioactivity monitoring facilities under the terms of Article 35 of the Euratom Treaty — Practical arrangements for the conduct of verification visits in Member States*, Official Journal C-155 of 4 July 2006, page 2.

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