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# 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

{SEC(2011) 1395 final}

## 1. INTRODUCTION

Nuclear safety and security are of utmost importance to the EU and its people. Hence, ensuring the highest possible standards of nuclear safety, security and emergency preparedness and response is a central concern of nuclear energy policy, as much in Europe as globally. 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 in the measures needed to minimise risk and guarantee the most robust levels of nuclear safety, security and non proliferation.

First and foremost, the EU, immediately acting in solidarity, mobilised its expertise and resources to assist Japan in containing and overcoming the consequences of the disaster. The May 2011 EU-Japan Summit was dedicated to coordinating follow up actions, in particular the implementation of measures on nuclear safety cooperation.

The Commission response to the events at Fukushima was immediate. Together with national regulators[1] 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 and endorsed by the European Council at its meeting of 24 – 25 March 2011[2]. The European Council also asked the Commission to "review the existing legal and regulatory framework for the safety of nuclear installations" and to "propose by the end of 2011 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.

This is the first time that all stakeholders in the EU have, on a voluntary basis, entered into a comprehensive and coordinated process of reviewing the safety and security of nuclear power reactors. The human and financial resources made available to the exercise, as well as the willingness of participants to work together at each step of the process, underline the importance of nuclear safety for the EU. Moreover, there are clear benefits of joint EU-level action in this area. Nuclear safety has been recognised throughout the EU as an issue of European, rather than only national dimension. In addition, the recent Communication on external energy policy[3] clearly demonstrates commitment to strengthening international nuclear safety cooperation.

In parallel, the Commission has been working to ensure maximum protection for EU citizens. Particular focus has been put on specific areas, such as the regulatory framework governing controls on imports of products originating from radiation prone areas, as well as recommendations to customs authorities and work to strengthen scientific research and environmental monitoring.

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1 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).

2 EUCO 10/11 (paragraph 31)

3 COM(2011) 539 final

This Communication summarises the work carried out to date to reassess the safety and security of nuclear power plants operating in the EU. It is based on the progress reports made available by Member States by 15 September and on the interim report prepared by the Council Ad Hoc Group on Nuclear Security (AHGNS). It also provides the Commission's initial assessment of the current situation, as well as some preliminary ideas for future work.

## 2. THE NUCLEAR STRESS TESTS: APPROACH, METHODOLOGY, PROGRESS TO DATE AND NEXT STAGES

### 2.1. Approach and Methodology

The European Council invited the Commission and ENSREG, to analyse the lessons to be learnt from the Fukushima events and to reassess the safety margins of the EU nuclear power plants. This should be done on the basis of a methodology shared among the Member States, thereby ensuring full transparency for the public. The mandate from the European Council to the Commission comprised:

(a) the definition of a methodology, and the implementation of comprehensive risk and safety assessments of nuclear power plants, to be undertaken in collaboration with the national nuclear safety regulators;

(b) a reassessment and a revision of the EU nuclear safety legislation in place;

(c) the invitation for EU neighbouring countries to take part in the process.

The Commission and ENSREG[4] agreed to work on two parallel tracks:

- A *Safety Track* to assess 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.

- A *Security Track* to analyse security threats and the prevention of, and response to, incidents due to malevolent or terrorist acts.

While nuclear operators and the national regulators, in close collaboration with the Commission, were in charge of aspects relating to nuclear safety, it was decided that Member States, assisted by the Commission, would be in charge of assessing nuclear security. To that end, the Council set up the Ad-hoc Group on Nuclear Security (AHGNS). Progress made on this security strand is reported in an annex to this document.

All fourteen EU Member States that operate nuclear power plants[5] plus Lithuania[6] are participating in the nuclear stress test exercise. Switzerland and the Ukraine have

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4 ENSREG meeting of 12 – 13 May 2011, based on the technical specifications proposed by WENRA (Western European Nuclear Regulators Association). See ENSREG declaration on www.ensreg.eu

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

also accepted to take part as neighbouring countries. Several countries[7] decided – in addition to the agreed requirements – to include not only operating nuclear power plants but also decommissioned plants or other nuclear facilities.

Specifications on the safety track of the stress tests[8] define three main areas to be assessed: extreme natural 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 regulators.

The stress test process is organised in three 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;

- *Review of the self assessments by national regulators*. National regulators will review the information supplied by operators and prepare national reports (progress reports by 15 September 2011, final reports by 31 December 2011);

- *Peer reviews of the national reports, conducted by national and European Commission experts* in the period January – April 2012.

The deadline to start the assessments was 1 June 2011. In compliance with the agreed deadlines, all the participating Member States have submitted their progress reports to the Commission. These form the basis of the present interim report.

However, the major deliverables are still outstanding. In order to achieve the necessary level of confidence in the results, the final national reports (due at the end of this year) and the peer review process which will scrutinise the results are essential.

## 2.2. Initial findings from the interim safety assessments

All progress reports indicate that nuclear operators are following and implementing the agreed methodology. However, the format, content, and level of detail of the national reports vary quite substantially. An annex to this Communication[9] provides a summary of the findings contained in each of the national reports.

Even if the assessment is still ongoing, the progress reports identify a number of issues that deserve an in-depth analysis. They also show a proper degree of convergence by the national regulators on the measures to be taken. Some national regulators have already considered revising the safety margins which they apply to

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6 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.

7 Belgium, Bulgaria, Finland, France, Germany, Lithuania, Slovakia, Spain, Ukraine, United Kingdom.

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

9 Commission Staff Working Paper "*Technical Summary of the national progress reports on the implementation of comprehensive risk and safety assessments of the EU nuclear power plants"*

the installations. Areas of attention include: increasing the robustness of plants against flooding[10], Loss of Power[11,12] and Loss of Ultimate Heat Sink[13], as well as increasing the robustness of plants against Beyond-Design-Basis earthquakes[14].

Some reports indicate potential improvements in the spent fuel pools, that would enable them to handle events for which they were not designed[15]. Furthermore, several reports identify possible ways to improve the management of severe accidents and emergency procedures[16].

However, certain differences among Member States are already apparent. For example:

– Seismic risks appear to be dealt with very differently in different countries, quite independent of the actual seismicity of the regions concerned. Significant differences appear in both underlying methodologies[17] and acceptance criteria[18]. Some countries are currently reviewing the level of seismicity which is considered in the plant design.

– Some countries[19] have already implemented Severe Accident Management Guidelines (SAMG)[20], while others have not.

– Some countries[21] have started to evaluate emergency management provisions under "beyond design-basis" accident conditions (i.e. accidents which are possible, but were not fully considered in the design because they were judged to be too unlikely) and identified possible improvements.

## 2.3. The next stage: peer reviews and validation of the results

Based on the European Council request, the Commission, together with national safety regulators, have decided to perform a peer review of the final results of the national assessments based on an agreed methodology[22]. Thus, the final national reports due for end of 2011 will have to follow a prescribed structure in order to maximise coherence and comparability.

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10 e.g. Finland, Hungary, Slovakia, Slovenia, Sweden, Switzerland

11 Including Loss of Offsite Power and Station Blackout

12 e.g. Finland, Romania, Slovenia, Spain

13 e.g. Finland, Slovenia, Spain, Sweden

14 e.g. Finland, Hungary, Slovakia, Spain, Sweden, Switzerland

15 e.g. Finland, Hungary, Lithuania, Slovenia

16 e.g. Germany, Hungary, Romania, Slovakia, Spain, Sweden

17 For example, whether or not to perform a full Seismic Probabilistic Safety Assessment (PSA). Periodically revised Seismic-PSAs are, for example, performed in Finland, Slovenia and Switzerland - quite independent of the relatively low or high levels of seismicity in these countries.

18 e.g. maximum peak ground acceleration at certain probabilities.

19 e.g. Belgium, Czech Republic, Finland, Hungary, Romania, Slovenia, Spain

20 SAMGs are site-specific procedures to help the operators minimize potential off-site doses in case of emergencies.

21 e.g. Slovenia, Spain, United Kingdom

22 ENSREG meeting of 11 October 2011

The peer review process, due to start in early 2012, will provide a complementary assessment of the national results at the European level, whilst ensuring the highest levels of objectivity and neutrality in order to build confidence in the results.

The process will be organised in two phases:

– 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 functions and severe accident management. A panel of senior regulatory experts will verify the relevant sections of the national reports. The final report will present draft conclusions in the key areas, as well as differences in methodology or evaluation.

– A *vertical* (national) peer review, assessing the national reports as a whole. The vertical peer reviews will take place in the Member States, to facilitate contacts of the peer teams with specialised staff from the regulators and with operators, and to facilitate access to nuclear power plants. The results of the peer reviews on horizontal topics, as well as the expertise gained during the process, will be used as input for the national reviews.

Peer review teams are composed of nuclear safety experts from all EU Member States. The secretariat of the peer review is provided by the Joint research Centre of the Commission.

The national reports, the progress reports, and the results of the peer reviews will be made public[23].

The Commission will present the results of the peer reviews in a *final report* for the European Council meeting of 28 – 29 June 2012.

## 2.4. Initial findings from the preliminary security assessments[24]

Nuclear security aims at preventing intentional acts that might damage a nuclear facility or result in the theft or dispersion of nuclear materials. Nuclear safety[25] and nuclear security are closely related. Consequently, 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, this safety assessment has been extended to nuclear security.

In the EU, few of the national safety regulators have specific responsibility for the security of nuclear power plants. Security competencies in the Member States are spread among different bodies.

Nuclear power plants benefit from sophisticated and comprehensive safety and non-proliferation regimes that have evolved over the years. At the international level, the

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23 www.ensreg.eu

24 This section is based on information received from the Council Ad-hoc Group on Nuclear Security (AHGNS).

25 Nuclear safety corresponds to the achievement of proper operating conditions of nuclear power plants, prevention of accidents or mitigation of their consequences, resulting in the protection of workers, the public and the environment from undue radiation hazards.

security regime for nuclear power plants is less developed[26]. However, in recent years security issues generally have come under greater scrutiny worldwide, particularly since the terrorist events of September 11, 2001 in the USA..

In order to assess the methodology on nuclear security for nuclear power plants, the Council has set up an Ad-hoc Group on Nuclear Security (AHGNS) made up of Member State experts with the participation of the European Commission. The progress report of the group is attached to this Communication[27] presenting its preliminary conclusions.

The AHGNS work programme is articulated in three stages:

– Collecting information, e.g. through a questionnaire distributed to Member States,

– Processing information, i.e. identifying key topics for recommendations on good practice and synthesising the outcome of the questionnaire,

– Preparing the progress and final reports.

The questionnaire focuses on a series of questions relating to the national legal framework governing nuclear security, the general national security framework, design basis threats (risks from unforeseeable malicious acts), nuclear security culture and emergency planning. As the Member States did not indicate that any significant issue should be added to these questions, the interim report focuses on these questions and their responses. The latter highlight a need to enhance international cooperation including international peer review missions for verifying the level and efficiency of physical protection measures for nuclear power plants.

Given their commitment to nuclear security, Member States confirm their ambition to make full use of and strengthen relevant international regimes, but also to disseminate good practice at the EU level. Their responses epmphasise the close link between the nuclear safety and security dimensions, as well as the interfaces between nuclear security and counterterrorism strategies. There is a need to continually re-assess nuclear security and the adequacy of measures, systems and security concepts in light of evolving threats. The reports also show that there is a common understanding concerning the importance of developing and implementing adequate processes for risk management and the need to bridge the gaps between the relevant expert communities.

In the context of its ongoing reflection on nuclear security matters, the Commission will fully take into account the findings and recomendations of the final report of the AHGNS due in June 2012.

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[26] For example, the IAEA has developed over decades a wide ranging set of guidance for safety, whereas its security related guidance is comparatively sparse.

[27] Interim report on nuclear security 17061/11 AHGNS 8 ATO 134

## 3. STRENGTHENING THE EU NUCLEAR SAFETY REGULATORY FRAMEWORK

In parallel to carrying out the stress tests, the Commission has started to reflect on the EU legal framework for nuclear safety, based on the preliminary findings of the national reports, the discussions at international level (IAEA) and stakeholders' input. The Commission's preliminary analysis indicates that the national regulators have different approaches to safety and use varying criteria to define safety improvements.

Based on these initial reflections, the Commission sees scope for improving the legal framework at EU and national level in the following areas: 1) improving technical measures for safety, and improving the necessary oversight to ensure full implementation, 2) improving the governance as well as the legal framework of nuclear safety, 3) improving emergency preparedness and response, 4) reinforcing the EU nuclear liability regime and 5) enhancing scientific and technological competence. However, the starting point is the full implementation of existing EU rules.

### 3.1. Implementing the existing nuclear safety legislative framework

The adoption by the Council in 2009 of the Nuclear Safety Directive[28] was a major step forward in the EU's nuclear safety regime. This Directive creates a comprehensive and legally binding Community framework for the nuclear safety of nuclear installations. It defines basic principles and obligations governing nuclear safety in the European Atomic Energy Community (Community, or Euratom). It transposes into Community law the requirements of the main international instruments, namely the Convention on Nuclear Safety[29] and the Safety Fundamentals[30] established by the International Atomic Energy Agency (IAEA).

The deadline for Member States to complete the implementation of the Nuclear Safety Directive at national level was 22 July 2011. The Commission has started infringement proceedings against the twelve Member States that have not complied with this deadline[31]. Those Member States which have not yet done so should ensure the transposition of the Directive as a matter of priority.

### 3.2. Improving the legislative framework for nuclear safety

The Commission is studying two approaches aiming to improve the nuclear safety framework, as requested by the European Council:

– (i) legislative amendments, to reinforce the existing Community nuclear safety legislative framework and

– (ii) improvements in the implementation of existing mechanisms, as well as enhanced coordination between the Member States.

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28 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, p.18 – 22)

29 INFCIRC 449 of 5 July 1994. The Community and all the EU Member States are Contracting Parties

30 Fundamental safety principles, IAEA Safety Standard Series No. SF-1 (2006)

31 Austria, Belgium, Cyprus, Denmark, Estonia, Greece, Italy, Latvia, Poland, Portugal, Slovakia and the United Kingdom

The nuclear safety framework will have to be reviewed both at the Community and the national level, in full compliance with the subsidiarity principle. Within international institutions, the Commission and the Member States will have to act together to ensure that developments of the international nuclear safety framework are consistent with Community and national legislation.

*3.2.1. Technical improvements and oversight*

Under current Euratom and national legislation, the prime responsibility for nuclear safety lies with the licensee (the operator of the power plant). National regulators require license holders to make technical improvements to their facilities as a follow-up to safety assessments, which includes the ongoing stress tests exercise. National regulators have to ensure that the required measures are implemented correctly.

At present, there are no common safety standards or criteria for nuclear power plants in the EU.

The preliminary results of the stress tests show that there is no consistency in the handling of safety margins across nuclear power plants in Europe. Depending on the final results of the EU stress tests process, as well as on lessons learnt from the Fukushima nuclear accident, an EU-wide set of basic principles and requirements could be envisaged, together with associated minimum technical criteria in the areas of siting, design & construction and operation of nuclear power plants[32]. EU principles and requirements will have to be reflected in national regulatory actions and decisions and ultimately be implemented by plant operators.

An EU wide set of criteria for the definition of site characteristics, licensing requirements and operational checks would require plant operators to converge towards best practices for new nuclear power plants that are to be built in the EU. Such requirements already exist in international and EU practice[33]. Although the choice of technical measures will also depend on the final results of the stress tests, these could be brought into the EU legislative acquis.. Moreover, there seems to be a case for extending best practices already covered in the present Nuclear Safety Directive. For example, international peer reviews, at present limited to the national legal and regulatory framework, could be broadened to include design safety and operational safety of nuclear power plants[34].

A range of actors should be involved in finalising the set of recommendations for the new European nuclear safety architecture, including the national regulators, the nuclear industry as well as the scientific and technical community, represented for example by the European Technical Support Organisations Network (ETSON).

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32 The Court of Justice (Ruling C 29/99, European Court reports 2002, Page I-11221) of the EU has recognised that Euratom possess shared competencies in these subjects

33 WENRA has developed Reactor Safety Reference Levels (2008) as an instrument to develop a common approach on the harmonisation of nuclear safety and its regulation in the EU countries. In 2010, WENRA adopted safety objectives for new nuclear power plants on the basis of the IAEA Fundamental Safety Principles. WENRA is a network of Chief Regulators of EU countries with nuclear power plants and Switzerland as well as of other interested European countries with observer status.

34 For example, operational safety is subject of IAEA peer review missions (OSART).

### *3.2.2. Nuclear safety governance*

One of the key lessons learnt from the Fukushima accident is that the effective independence of the national regulatory authorities must be ensured. In the EU, this could be further strengthened by making the relevant provisions of the Nuclear Safety Directive[35] more explicit and defining criteria for the effective independence of the national regulatory authorities. In addition, the Nuclear Safety Directive could clarify minimum regulatory competencies that national authorities must possess.

At present, in some Member States the regulatory responsibility is split between several entities or is given to Ministries, rather than being given to a single independent authority.

In line with its mandate, ENSREG has provided the EU institutions with recommendations on nuclear safety since 2007. It is time to reflect on its future role, taking into account the experience gained.

Transparency requirements could be further specified, by extending these beyond existing general obligations to inform the public[36] and employees of nuclear operators. In line with this, national regulatory authorities could be asked to inform the public on the reasons behind their regulatory decisions. Confidentiality clauses would protect information with security implications.

## 3.3. Enhancing emergency preparedness and response

Actions to prevent, prepare for and deal with nuclear and radiological emergencies are often taken at national level. However, at Community level, there is a range of legislative instruments and mechanisms[37] and special provisions relating to nuclear accidents[38]. Several Community mechanisms can be activated in such events.

In December 2010, the Commission, in close collaboration with the Member States, issued Guidelines on national risk assessments for disaster management. Member States have voluntarily committed to prepare and submit their national risk assessments by the end of 2011. Nuclear safety and public health threats are important elements of a comprehensive risk assessment.

In order to better prepare for a nuclear emergency and to coordinate response actions, cross-border nuclear risk management plans could be put in place (possibly including EU neighbouring countries). These need to be linked to an enhanced European disaster response to nuclear emergencies. It is also important to ensure availability of equipment for emergency measures (including heavy equipment such as backup generators) that can be shared as needed, as well as site restoration plans.

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35 Art. 5(2) therein

36 Art. 8 Nuclear Safety Directive

37 Including the Basic Safety Standards Directive, the Public Information Directive, the ECURIE Decision, the Civil Protection Mechanism legislation, as well as the foodstuffs and feeding stuffs regulations following the Chernobyl accident and the accident at the Fukushima nuclear power station

38 Legislation on maximum permitted levels of radioactive contamination of foodstuffs and of feedingstuffs following a nuclear accident or any other case of radiological emergency

Following the Commission Communication "Towards a stronger European disaster response: the role of civil protection and humanitarian assistance"[39], work is in progress to create a European Emergency Response Capacity of Member States' assets, to establish a fully-functional 24/7 Emergency Response Centre, and to develop European contingency plans for the main types of disasters, including nuclear. The Commission will present proposals to include these elements in the European Civil Protection Mechanism legislation.

### 3.4. Clarifying questions of nuclear liability

The question of nuclear liability in the case of a nuclear accident is crucial. The Commission's Communication *Energy 2020 - A strategy for competitive, sustainable and secure energy* states that: "The legal framework for nuclear safety and security will be further enhanced through (…) a proposal for a European approach on nuclear liability regimes."

The Euratom Treaty[40] also stipulates that Member States are to "take all measures necessary to facilitate the conclusion of insurance contracts covering nuclear risks."

Most Member States have chosen to rely on a number of international conventions (Paris Convention/Brussels Supplementary Convention and Vienna Convention), but some are not a Party to any. This has led to a "legal patchwork" within the EU. Legal coherence in the EU could be improved on two fronts: i) victim protection in different Member States, particularly to improve victims' compensation in the EU, irrespective of their country of residence, and ii) the potential impact on the functioning of the internal market, particularly where diverging financial liabilities of operators could distort competition.

### 3.5. Enhancing scientific and technological competence

The Commission has launched a "Training and Information programme, drawing the lessons from Fukushima" for the next 4 years, jointly funded by the EU and the Euratom Framework Programmes[41].

The aim is to foster awareness of the importance of nuclear safety and to share best practice of risk governance amongst nuclear experts and policy makers. The programme will also improve collaboration between universities, research organisations, public bodies and industry in synergy with the EU platforms, in particular the Sustainable Nuclear Energy Technology Platform (SNE-TP) and the European Nuclear Energy Forum (ENEF).

As concerns nuclear research to be programmed under the next EU Multiannual Financing Framework ("Horizon 2020"), there is still a need to focus on nuclear safety, to retain nuclear expertise in the EU and to strengthen the competencies of nuclear operators and regulators.

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39 COM(2010) 600 final

40 Euratom Treaty, Art. 98

41 http://cordis.europa.eu/fp7/euratom-fisshome.hmtl

## 4. THE INTERNATIONAL DIMENSION

### 4.1. Involvement of third countries in risk and safety assessments

#### *4.1.1. EU Neighbouring Countries*

The European Commission encouraged all countries operating nuclear power plants to carry out, as soon as possible, risk and safety assessments similar to those under way in the EU, in order to strengthen nuclear safety worldwide.

The Commission has taken steps to extend assessments to EU neighbouring countries that operate or own nuclear power plants: Switzerland, the Russian Federation, Ukraine, Armenia and Croatia, as well as countries that have advanced plans for the development of nuclear power, namely Turkey and Belarus.

On 23 June 2011, a joint statement was agreed with the above mentioned countries on a common approach to stress tests. While Switzerland and the Ukraine are integrated in the EU stress test process, other countries are working with different timetables. However, there is a shared commitment to carry out safety reassessments by the end of 2012.

The EU will continue to encourage all EU neighbouring countries to get involved in the stress tests exercise, and ensure that all efforts are made to create the best conditions for nuclear safety both inside the EU and at its borders.

#### *4.1.2. Cooperation with the International Atomic Energy Agency (IAEA) and the G8/G20*

The IAEA Action Plan on Nuclear Safety, adopted in September 2011, encourages all IAEA Member States to undertake, and act upon, a national assessment of the design of nuclear power plants against site-specific extreme natural hazards. The European Commission will provide input to IAEA work on developing a methodology that can be used by other States, and is ready to assist the IAEA in advising or helping to assess third countries in this area.

The Commission fully participated in the G8/G20 process preparing the IAEA Ministerial conference of June 2011, which endorsed the IAEA action plan on nuclear safety. The Commission will do its utmost to achieve further progress in these international initiatives.

### 4.2. Proposed improvements in the global legal framework on nuclear safety

Events at Fukushima highlighted the need to strengthen the international legal framework for nuclear safety. Through the IAEA, the main instruments governing nuclear safety are internationally agreed safety standards and International Conventions, in particular the Convention on Nuclear Safety (CNS) and the Convention on the Early Notification of a Nuclear Emergency.

IAEA Member States generally acknowledge the need to revise the international nuclear safety framework, especially the CNS, with the aim of increasing its

effectiveness, governance and enforceability. The Commission intends to contribute to updating the CNS on behalf of the Euratom Community[42].

The CNS should be updated in line with the latest IAEA safety standards, which should become legally binding and should be further developed.

As a minimum, the EU should seek to bring the CNS in line with the existing Nuclear Safety Directive in terms of scope and obligations. The revised CNS would then cover all types of nuclear facilities, with compulsory regulatory reviews on a periodic basis. It should also include criteria for regulatory independence and enforcement mechanisms such as mediation, conciliation or arbitration.

The CNS provisions for emergency preparedness also need to ensure a more effective and coordinated emergency response as well as assure a coherent interface with other international conventions[43].

### 4.3. External nuclear safety cooperation

Improving nuclear safety in third countries has been an essential part of the Community's work since the early 1990s. The TACIS and Phare programmes made it possible to provide assistance to Central and Eastern European and former Soviet Union countries for fifteen years. From 2007, nuclear safety cooperation was extended to other third countries under the Instrument for Nuclear Safety Cooperation (INSC). The Communication on the external dimension of energy policy[44] calls for greater convergence of international regulatory frameworks and seeks to promote binding international standards for nuclear safety.

The present INSC will provide support to third countries that have committed to participate in the stress tests[45] and will take full account of the progress of the ongoing exercise when discussing further cooperation for the period 2012 – 2013. The Commission has proposed a new INSC for the period 2014 – 2020. The new proposed instrument needs to take stock of the experience gained by the EU exercise, and take into account in its implementation the priorities emerged from the stress tests carried out in neighbouring countries. The new INSC needs to be integrated into a comprehensive and coherent strategy of nuclear safety cooperation, taking into account international actions in the IAEA framework.

## 5. CONCLUSIONS AND WAY FORWARD

In the aftermath of Fukushima, the EU and its Member States committed to carrying out a comprehensive assessment of the nuclear power plants in Europe. By bringing together for the first time power plant operators, national regulators and authorities, and EU institutions, the process highlighted the added value of EU coordination and

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42 Art. 101, Euratom Treaty

43 Convention on Early Notification of a Nuclear Accident (INFCIRC/335 of 18 November 1986) and Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency (INFCIRC/336 of 18 November 1986)

44 COM(2011)539 final of 7 September 2011

45 Project proposals for Armenia and Ukraine are included in the 2011 INSC Action Programme

cooperation, to ensure that the EU's high standards of nuclear safety and security are maintained and further improved where necessary.

This exercise is all the more important given the age of many reactors in the EU, and the interest some Member States and neighbouring countries have in building new nuclear capacity. The results of the stress tests are expected to provide timely, objective and scientifically sound information, which will help to strengthen the safety parameters with regard to the siting, design, operation, maintenance and regulation of existing and planned nuclear power plants.

Initial findings suggest areas for possible improvement both at national and EU level. Member States will decide how to follow up the assessment nationally. The Commission welcomes the steps already taken by some Member States in this direction. In this Communication, the Commission has outlined some initial orientations for strengthening the EU nuclear safety framework and for enhancing the coordination of existing instruments or mechanisms.

These preliminary indications will need to be further reviewed and followed up in light of the final findings of the stress tests. The Euratom Treaty provides a flexible and comprehensive legal basis to implement, where necessary, improvements in the nuclear safety legislation.

Member States are expected to submit their final risk and safety assessment reports to the Commission by 31 December 2011. Peer reviews will be carried out from January to April 2012. The Commission will present a final report on the Stress Tests to the European Council for their meeting of 28-29 June 2012, including possible legislative initiatives aiming to further strengthen the nuclear safety framework in Europe.

The Commission is committed to ensuring openness and transparency throughout the stress test process. It will continue to work closely with the full range of stakeholders, including Non Governmental Organisations, and will present the results of the peer reviews in a public meeting.

Furthermore, before making any legislative proposals as a follow up to the stress test exercise, the Commission will hold a public consultation and will involve all key stakeholders, beyond the main experts' groups in the nuclear area (i.e. ENSREG, the European Nuclear Energy Forum (ENEF) and WENRA).

In the context of its collaboration with third countries and with international organisations that are active in the field of nuclear energy, in particular with the IAEA, the EU will share its experience gained with the stress tests, in order to reinforce the international legislative and regulatory regime for nuclear safety.