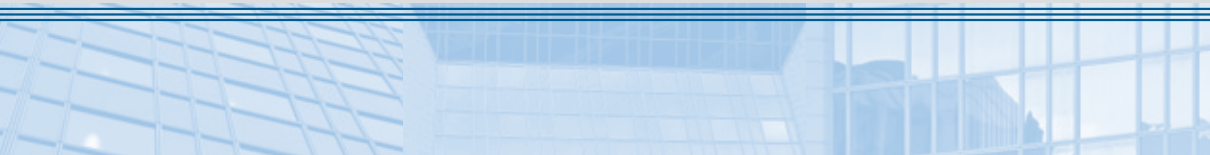
THE STRATEGIC PLAN

of the Nuclear Energy Agency

2011-2016

Nuclear Energy Agency
Organisation for Economic Co-operation and Development



Foreword

The evolution of the Strategic Plan of the Nuclear Energy Agency

The Nuclear Energy Agency (NEA) adopted its first Strategic Plan in 1999, as a central element of its reform process. This original plan provided important guidance for NEA activities from 1999 to 2004.

The second Strategic Plan provided guidance for the period 2005-2009, with the Steering Committee for Nuclear Energy agreeing in October 2008 to extend this plan by one year, through December 2010, to align it with the OECD biennial budget cycle. The process to prepare a new Strategic Plan was launched in spring 2009, after consultations with the Steering Committee. A questionnaire was sent to Steering Committee members and stakeholders in May 2009, asking for their assessments of the previous plan, their review of the functioning of the Steering Committee and the Secretariat, and their ideas for incorporation into the next plan. A small, independent, high-level advisory group was convened in July and November 2009 to provide additional input and guidance.

Following a Steering Committee policy debate in late October 2009, a structured review and comment period ensued. Comments on the draft plan were collected and integrated from January to March 2010. Final discussions followed, and the new Strategic Plan was approved in April 2010.

The purpose and structure of the NEA Strategic Plan

This Strategic Plan is intended to guide the NEA as it seeks to meet the evolving needs of member countries in the field of nuclear energy, including applications of ionising radiation. Following the introduction, the second chapter presents the NEA mission statement and general strategies; the third chapter describes specific NEA activities, sector by sector. The fourth chapter describes governance of the Agency and the fifth chapter explains interactions with external organisations and groups, including those within the OECD family. The basis of authority for the Nuclear Energy Agency and its activities is presented in the Annex.

Table of contents

Executive summary

The Strategic Plan is intended to guide the Nuclear Energy Agency (NEA) during the period 2011-2016 as it seeks to meet the evolving needs of member countries in the field of nuclear energy, including applications of ionising radiation. It sets out the mission statement, general strategies and priorities, outlines NEA activities sector by sector, and describes the governance of the Agency and its interactions with external stakeholders, including those within the OECD family.

The current debate on energy is dominated by three topics: finding acceptable ways to supply the increasing demand for energy, ensuring the security of those energy supplies and minimising the environmental impacts of emissions from the production and use of energy. In spite of the global financial crisis, long-term projections continue to show a relentless rise in global energy demand. By mid-century, global electricity demand is expected to increase by about a factor of 2.5 from today.

If government policies and social behaviours remain unchanged, the trends in energy supply and use are unsustainable, with ever greater levels of energy and electricity consumption, ever greater dependence on fossil fuels, increasingly fierce competition for remaining supplies of oil and natural gas, and escalating CO_2 emissions and environmental impacts.

Against this complex array of sustainable development challenges, nuclear power is an established, reliable technology viewed by an increasing number of countries as having potential to be part of the solution. Nuclear power emits no greenhouse gases, sulphur dioxide or ozone during electricity generation. Entire life cycle analyses show that nuclear and renewables produce negligible emissions of CO_2 in comparison with the fossil fuel chains. At the same time, nuclear power plants have been demonstrated to be a reliable source of baseload electricity and as the past decade of performance has shown, the costs of nuclear electricity generation are competitive with those of coal and gas.

However, the degree to which nuclear power will contribute to the solution remains unclear. Its role will depend greatly on the effectiveness of government policies and increased social acceptance. Remaining social acceptance challenges include the long-term management of spent nuclear fuel, the disposal of radioactive waste, concerns related to the security of nuclear material and facilities, and the effectiveness of the non-proliferation regime.

The NEA aims at being a centre of excellence, capable of meeting new challenges and adapting to circumstances by providing expert analyses and recommendations in a timely manner to its member countries and other interested stakeholders. Its mission over the six-year period is to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as to provide authoritative assessments and to forge common understandings on key issues as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

To fulfil its mission, the Agency will serve as a forum for sharing and analysing information and experience among member countries, foster international co-operation in the nuclear field, help member countries to pool and maintain their technical expertise and human infrastructure, and to support nuclear activities by providing member countries with nuclear policy analyses. The NEA's specific goals are defined on a sector-by-sector basis. The first six sectors are prioritised according to views expressed by NEA member countries:

A. Nuclear safety and regulation: to assist member countries in their efforts to ensure high standards of safety in the use of nuclear energy, by supporting the development of effective and efficient regulation and oversight of nuclear installations and activities, and by helping to maintain and advance the scientific and technological knowledge base.

B. Radioactive waste management: to assist member countries in the development of safe, sustainable and broadly acceptable strategies for the long-term management of all types of radioactive waste, particularly long-lived waste, and spent fuel considered as waste.

C. Radiological protection and public health: to assist member countries in the regulation and implementation and further development of the system of radiological protection by identifying and effectively addressing conceptual, scientific, policy, regulatory, operational and societal issues.

D. Nuclear science: to help member countries identify, collate, develop and disseminate the basic scientific and technical knowledge required to ensure the safe, reliable and economic operation of current and next-generation nuclear systems.

E. Development and use of nuclear energy: to provide governments and other relevant users with authoritative, reliable information on a broad range of factors relevant to the current performance and future viability of nuclear power generation for use in policy analysis and decision-making, as well as to provide forecasts on the future role of nuclear energy in a sustainable develop-

ment perspective and within the broad context of national and international energy policies.

F. Legal affairs: to help create sound national and international legal regimes required for the peaceful uses of nuclear energy, including international trade in nuclear materials and equipment, to address issues of liability and compensation for nuclear damage, and to serve as a centre for nuclear law information and education.

G. Data Bank services: to be the international centre of reference for its member countries with respect to basic nuclear tools, such as computer codes and nuclear data, used for the analysis and prediction of phenomena in the nuclear field, and to provide a direct service to its users by developing, improving and validating these tools and making them available as requested.

H. Information and communication: to provide member governments and other major stakeholders with information resulting from NEA activities and to enhance awareness and understanding of the scientific, technical, economic and legal aspects of nuclear activities as well as awareness of the NEA itself.

The NEA will strengthen co-operation with the OECD family, the International Atomic Energy Agency and other international bodies to enhance efficiency by identifying areas of synergy, clarifying roles and areas of focus and helping to avoid duplication of effort. It will liaise with industry and other stakeholders to collect and utilise relevant information and data in NEA work. The NEA will also establish effective relationships with non-member countries whose participation in the NEA programme can be mutually beneficial, at the same time limiting further membership to countries that can make a significant contribution to the Agency.

The Secretariat, in close collaboration with the Steering Committee for Nuclear Energy and the NEA standing technical committees, will ensure the Agency's effectiveness by establishing and carrying out a programme of work that meets the needs of member countries in accordance with this Strategic Plan and establishing clear methods for dealing efficiently with cross-cutting issues that concern more than one sector of NEA activity.

Fulfilling the goals and strategies set out in the Strategic Plan presupposes a stable and predictable level of financial resources. The Strategic Plan has been developed based on the hypothesis that resources over the next six years are adequate and sustainable. The Secretariat will seek to allocate resources in accordance with Agency mandates and the priorities given to the sectors of activity, taking into account proposals for extending NEA participation in OECD horizontal activities and for becoming more involved in energy-related policy issues.

I. Introduction

Energy demand, the security of energy supplies, and sustainability: a 21st century global challenge

The current debate on energy is dominated by three topics: growth in demand, the security of energy supplies and environmental impacts.

In spite of the global financial crisis, long-term projections continue to show a relentless rise in global energy demand. In developing countries, the drive for social and economic progress naturally leads to lifestyles with increased per capita energy consumption, a decades-long trend that is compounded by global population growth. By mid-century, global electricity demand is expected to increase by about a factor of 2.5 from today.

The security of energy supplies is a growing concern, particularly for countries that depend heavily on energy imports due to limited indigenous fuel resources. Most of the earth's readily recoverable oil and gas reserves are concentrated in a few countries in the Middle East and in the Russian Federation. The last few years have witnessed remarkable volatility in energy markets, driven by high demand, energy security concerns and, in some cases, socio-political threats due to uncertain relationships with supplier countries. Throughout the member countries of the OECD, governments have invoked a variety of strategies to enhance the security of their energy supplies, encouraging energy conservation and efficiency measures, investing in energy infrastructure and energy R&D, exploring the feasibility of greater reliance on renewable energy sources and seeking new or stronger alliances to diversify their portfolios of energy suppliers.

The environmental implications of unabated dependence on fossil fuels are considered severe: an ever increasing threat of climate change caused by anthropogenic CO_2 emissions. The United Nations Intergovernmental Panel on Climate Change (IPCC) has called repeatedly for a drastic redirection towards the use of environmentally sound sources of energy as well as great improvements in energy efficiency and energy conservation. To control greenhouse gas emissions and stabilise the climate, according to the IPCC, the world must achieve a 50% reduction in CO_2 emissions by 2050. Based on current projections of population growth, gross domestic product (GDP) per capita and energy intensity, this will require reducing by a factor of four the carbon

intensity of the world's energy system. Given that electricity generation accounts for 27% of global anthropogenic CO_2 emissions, and is by far the largest and fastest-growing source of greenhouse gases, the ability to move towards low-carbon electricity sources will be a major determinant of global success in meeting this goal.

If government policies and social behaviours remain unchanged, the future scenario looks to be a grim convergence of negative trends: ever greater levels of energy and electricity consumption; ever greater dependence on fossil fuels; ever fiercer competition for remaining supplies of oil and natural gas; and ever greater increases in CO_2 emissions and environmental impacts. Clearly, this pattern is unsustainable.

Nuclear energy: part of the solution

Against this complex array of sustainable development challenges, nuclear power is an established, reliable technology viewed by an increasing number of countries as having potential to be part of the solution.

Nuclear power emits no greenhouse gases, sulphur dioxide or ozone during electricity generation. Entire life cycle analyses show that nuclear and renewables produce negligible emissions of CO_2 in comparison with the fossil fuel chains.

At the same time, nuclear power plants have demonstrated to be a reliable source of baseload electricity and as the past decade of performance has shown, the costs of nuclear electricity generation are competitive with those of coal and gas.

Recent analysis has shown that lifetime generation costs of new nuclear plants are also competitive with other generating options. Increasing carbon pricing would make nuclear generation even more competitive than is the case today. However, the high up-front capital costs of new nuclear build may deter investment, especially in liberalised electricity markets, and governments aiming to increase nuclear capacity may need to provide support for financing new nuclear construction.

The potential for using nuclear power to address the challenges of energy demand, energy security and climate change issues is considerable. However, the degree to which nuclear will contribute to this solution remains unclear. It will depend greatly on government policies taking into account social acceptance. These choices, in turn, will hinge on the success of nuclear operators, nuclear regulators and organisations such as the NEA, the International Atomic Energy Agency, and others in their efforts to address concerns related to nuclear safety, radioactive waste disposal, the proliferation of nuclear

weapons, and the competitiveness of investments in nuclear energy compared to other forms of electricity generation.

In this context, we have seen a resurgence of interest in nuclear power in more countries, including broader endorsement from some environmental advocates. Extensions of plant lifetimes, power upgrades, and sustained low operating costs have made nuclear investments appear more attractive. And in some member countries, public acceptance is improving in relation with the high levels of safety performance achieved by nuclear operators. This performance is also supported by strong safety standards, a healthy safety culture, and a sustained research effort in the fields of safety and radiological protection, which contributes to maintain a high level of safety expertise in member countries.

A challenge that remains is the long-term management of spent nuclear fuel and the disposal of radioactive waste. In a number of countries, progress has been made in the long-term management of spent nuclear fuel and the disposal of radioactive waste based on mature technologies. More work will be needed in this area, as well as on long-term storage of spent nuclear fuel and radioactive waste, proliferation-resistant reprocessing of spent fuel and advanced nuclear systems with innovative fuel cycle approaches – to enhance public and political confidence that the back-end of the fuel cycle can be managed sustainably.

Concerns related to the diversion of nuclear material and the proliferation of nuclear weapons are also likely to continue to be significant issues for the foreseeable future.

The economics of nuclear power will continue to be a dominant factor in determining its 21st century success. The rising costs of constructing the new generation of nuclear plants has emerged as a concern in a number of member countries. In this regard, the NEA's expertise in providing relevant data and conducting studies related to economics, new technologies and resources is a unique asset to support decision-making in member countries.

Policy makers are being called on for advice and recommendations to address extraordinarily challenging global issues with respect to energy demand, the security of energy supplies and sustainability. Each technology for generating electricity comes with advantages and disadvantages. Each carries an array of risks. When analysing these technologies comparatively, policy makers as well as the public should be provided with the necessary information to make their comparisons thoroughly, fairly and across the entire life cycle of the technologies concerned. The decisions that arise from these assessments will have implications not only for the future of nuclear power, but more broadly for the environmental health of the planet and the societal well-being of future generations.

Impact on the NEA

In the context described above, it is worth noting that the OECD is pressing for policies that will result in a more robust, more equitable and more environmentally friendly global society. For the NEA, although these changing circumstances are bringing about a renewed interest in nuclear energy, member countries have concluded that the mission statement is still relevant to guide the Agency's activities over the next six-year period. The Agency, because of its size and membership composition, has indeed the necessary flexibility and reactivity to adapt to new challenges brought on by a changing world.

II. The mission of the Nuclear Energy Agency

The NEA aims at being a centre of excellence, capable of reacting to new challenges and circumstances by providing expert analyses and recommendations in a timely manner to member countries and other interested stakeholders.

Fulfilment of the goals and strategies set out in the Strategic Plan presupposes a stable and predictable level of financial resources. The Strategic Plan has been developed based on the hypothesis that resources over the next six years are sustainable. Particular attention will need to be paid to the management of human resources at the Agency, as the recruitment of well-qualified staff is essential to ensuring the Agency's ability to carry out the goals of the Strategic Plan, and to ensure that its work is of the expected high quality.

A. Mission statement

To assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes. To provide authoritative assessments and to forge common understandings on key issues as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

B. General strategies

To fulfil its mission, the Agency will:

Serve as a forum for sharing and analysing information and experience among member countries, by:

- maintaining an efficient communications network among nuclear experts;
- interacting with the main players in the nuclear field, promoting an open dialogue among operators, regulators, government policy specialists, research and development specialists, international organisations and other stakeholders;

- involving selected non-member countries with good non-proliferation credentials, particularly those that are significant players in the nuclear field and that can provide added value to the Agency's activities;
- alerting policy makers and regulators to significant scientific developments and their implications;
- preparing state-of-the-art reports that summarise current knowledge in specific technical or regulatory policy areas;
- ensuring appropriate dissemination of the scientific and technical results of its work; and
- elevating its visibility in member countries and in the international community as an objective and non-promotional organisation.

Foster international co-operation in the nuclear field, by:

- helping to identify common issues, lessons and opportunities;
- facilitating the development of consensus positions, including "collective opinions", among member countries;
- developing good practice documents and common strategies;
- identifying gaps in scientific knowledge needing to be filled in support of policy and regulatory decisions;
- assisting in the development, organisation and co-ordination of internationally funded research projects and other joint undertakings; and
- pursuing strategic collaboration with international organisations in areas of mutual interest.

Help member countries to pool and maintain their technical expertise and human infrastructure, and support their nuclear activities, by:

- assessing developments in the state of the art, documenting experiments and maintaining databases across a range that serves the needs of technical specialists, decision makers, opinion leaders and stakeholders, using, when appropriate, economic tools;
- collaborating on joint projects with the IAEA and other relevant organisations on topics to enhance safety in the use of nuclear energy;
- providing advice as a scientific, technical, economic and legal centre of nuclear competence;
- contributing to the management and preservation of nuclear knowledge developed through past member country and NEA programmes and experience;
- supporting member countries in their efforts to secure qualified human resources; and
- organising peer reviews.

Provide member countries with nuclear policy analyses, by:

- carrying out studies on fundamental aspects of current and future nuclear energy use including life cycle regulation and economic analyses;
- contributing to studies on broader issues, including those carried out within the OECD on energy and sustainable development;
- drawing on the expertise, products and analytical methods of OECD family organisations; and
- taking into account human and societal issues as well as concerns of the general public.

C. Activities and operations

To fulfil its mission the NEA will pursue work within the following sector-specific activities:

1. Nuclear safety and regulation;
2. Radioactive waste management;
3. Radiological protection and public health;
4. Nuclear science;
5. Development and use of nuclear energy;
6. Legal affairs;
7. Data Bank services; and
8. Information and communication.

These sectors of activity are central to the fulfilment of the NEA mission. They are elaborated individually in Chapter III. The introduction to each sector sets out the goal of NEA work in that area, and explains its importance as a core NEA activity. Strategies are then given to describe how the goal will be achieved.

The selection and prioritisation of these sectors of activity are based, first and foremost, on a careful evaluation that compares the needs of the international community to the potential for the NEA to add value. This naturally directs attention to:

- identifying and addressing common technical problems;
- improving the databases used in scientific, technical, regulatory, legal, economic and policy analysis;
- making high-quality information available to decision makers;
- developing common approaches for transparency;
- promoting common methodologies, particularly in the field of economic analyses and assessments;

- promoting continuous improvements in achieving efficiency; and
- comparing the NEA's expertise and scope of work to that of other international organisations, to avoid overlap and to optimise cost-benefit to member countries.

The first six sectors elaborated in Chapter III, ordered according to priority that reflects the views expressed by NEA member countries, provide guidance in distributing the work of the Secretariat. This does not imply, however, that all activities of a high-ranked sector have priority over the lower-ranked sectors. In addition, the last two sectors have not been integrated into this prioritised ranking. Data Bank services are exempted because the Data Bank constitutes an independent reference centre for many NEA countries. The information and communication sector is not prioritised because it supports all sectors of NEA activity.

Naturally, some NEA activities cross over more than one of these sectors. Examples include: next-generation nuclear reactors, knowledge management and human resources development. Such horizontal activities are co-ordinated in Agency practice. A fuller description of how the Agency deals with horizontal activities is provided in Chapter IV.C.

All NEA activities, including horizontal activities, are described in the biennial Programme of Work and Budget, which is approved by the NEA Steering Committee and submitted to the OECD Secretary-General for transmission to the OECD Council. The Council, in turn, decides on the overall OECD Programme of Work and Budget.

A standing technical committee (STC) structure has been established by the Steering Committee to carry out NEA core activities. This structure does not attempt to mirror strictly the sectors of the Strategic Plan. Rather, it is designed to make the best use of existing competencies across the STCs, while maintaining flexibility in carrying out the Programme of Work.

The Secretariat seeks to allocate resources in accordance with Agency mandates and the priorities given to the sectors of activity, taking into account proposals for extending NEA participation in OECD horizontal activities and for becoming more involved in energy-related policy issues. Budgetary constraints require the NEA to continue optimising the use of its resources so as to maintain its traditional strengths while responding to the changing global economic environment and the need to address horizontal issues more efficiently. However, the fact that the NEA needs sustainable resources is fundamental.

III. NEA activities by sector

The general strategies outlined in Chapter II.B are common to multiple NEA sectors. As such, these common strategies and activities are not reiterated in the descriptions that follow, except insofar as specific variants exist within a given sector.

A. Nuclear safety and regulation

The goal: *to assist member countries in their efforts to ensure high standards of safety in the use of nuclear energy, by supporting the development of effective and efficient regulation and oversight of nuclear installations and activities, and by helping to maintain and advance the scientific and technological knowledge base.*

Member countries have two interrelated objectives related to their nuclear facilities: maintaining and improving high standards of nuclear safety that reflect the current state of science and technology, and enhancing the quality and effectiveness of nuclear regulation. The NEA assists its member countries in maintaining and continuously evolving the scientific, technical and regulatory knowledge base required to ensure the safety of design, construction, operation, maintenance and decommissioning of nuclear reactors and other civilian nuclear installations as well as the safety of nuclear activities. International nuclear co-operation greatly expands the base of knowledge and experience, thereby enhancing the national capacity for addressing safety concerns, and supporting efforts to maintain safety performance and regulation at the highest levels.

To achieve this goal, the Agency will:

- facilitate an effective exchange of safety-relevant information among member countries, in order to identify significant generic issues and trends and to develop common understanding and approaches with a view to anticipate the resolution of such generic issues;
- foster the continuous enhancement of the knowledge base of nuclear safety and the safety expertise capability in member countries, through scientific co-operation and the development of joint projects;
- assist member countries in the resolution of safety issues and strengthen confidence in the solutions and their implementation;

- address safety issues associated with new technologies and reactor designs;
- help maintain an adequate level of capability and competence necessary to ensure the safety of existing facilities, in particular their long-term operation, and future nuclear facilities and activities; and
- enhance the efficiency and effectiveness of the regulatory process and encourage harmonisation of the regulatory processes.

B. Radioactive waste management

The goal: *to assist member countries in the development of safe, sustainable and broadly acceptable strategies for the long-term management of all types of radioactive waste, particularly long-lived waste, and spent fuel considered as waste.*

Radioactive waste and materials exist in countries with and without nuclear power programmes as a result of past and present activities and from obsolete nuclear facilities which will be dismantled. Obsolete facilities, materials and waste need to be managed responsibly and in an integrated fashion, for the sake of present and future generations. Significant progress has been achieved on the scientific and technological aspects of waste management, and considerable experience is available in NEA member countries on waste and materials processing, conditioning, storage, transport and disposal. In some countries, specific experience is available in managing decommissioning of nuclear facilities and handling the resulting waste streams. The long-term management of long-lived radioactive waste is an area of particular focus in terms of how best to integrate technical advances with societal demands in decision-making, and correspondingly how to refine regulatory and policy frameworks. Other specific demands come from the generation and management of waste from decommissioning. International co-operation amongst waste management and decommissioning operators, regulators, policy makers and R&D specialists is essential to fostering a broader understanding of the issues at hand and formulating more widely acceptable solutions.

To achieve this goal, the Agency will:

- bring about a shared and broad-based understanding of the management of radioactive waste and materials, particularly in the long-lived waste area taking into account legal and economic considerations;
- facilitate the elaboration and implementation of waste management and decommissioning strategies at national and international levels;
- help elaborate common understanding of regulatory approaches in the management of radioactive waste;

- provide for international peer reviews to ensure that best practices are a continued feature for regulatory and technical approaches in waste management and decommissioning;
- explore the implications of very long time frames and the related challenges of knowledge preservation and memory keeping; and
- identify specific issues of interest on which involved institutions and other stakeholders can learn from each other, and provide a platform for discussing those issues.

C. Radiological protection and public health

The goal: *to assist member countries in the regulation and implementation and further development of the system of radiological protection by identifying and effectively addressing conceptual, scientific, policy, regulatory, operational and societal issues.*

In order to reap the benefits and address the hazards of radiation and radioactive materials, NEA member countries proactively establish systems to ensure the radiological protection of people and the environment. New scientific and social challenges continue to arise in this area. In recent years, this has included issues such as the radiological protection of non-human species and the application of modern risk-informed approaches to radiological decision-making. In response, the international system of radiological protection, international standards, and national policies and regulations are also evolving.

To achieve this goal, the Agency will:

- identify emerging issues in radiological protection science and facilitate the application of new scientific knowledge for practical uses;
- assist policy makers in developing and improving radiological protection policies to best reflect state-of-the-art science and technology;
- assess and comment on selected draft recommendations and standards to identify their possible implications for the regulation and implementation of radiological protection;
- contribute to reaching a harmonised framework for regulatory issues in radiological protection, including related public health issues;
- help member countries improve their operational radiological protection capabilities, including radiological emergency preparedness and management; and
- assist member countries in tackling the social challenges related to radiological protection.

D. Nuclear science

The goal: *to help member countries identify, collate, develop and disseminate the basic scientific and technical knowledge required to ensure the safe, reliable and economic operation of current and next-generation nuclear systems.*

Research capability and technical expertise in basic disciplines, such as reactor physics, thermal hydraulics, neutronics, fuel physics and chemistry, radiation physics and material science, are needed to develop nuclear programmes and to maintain and enhance a high level of performance and safety. Advancing this body of knowledge is central to addressing issues of importance for current-generation nuclear facilities, but is just as essential to the design, construction and operation of new reactors and fuel cycles. Future nuclear technologies will also greatly benefit from the systematic accumulation of knowledge in these areas. Fostering the active preservation and development of this knowledge in an international framework and enhancing the dissemination of the scientific results are vital to the effective performance of nuclear activities.

To achieve this goal, the Agency will:

- help advance the existing scientific knowledge needed to enhance the performance and safety of current nuclear systems;
- contribute to building a solid scientific and technical basis for the development of future-generation nuclear systems; and
- support the preservation of essential knowledge in the field of nuclear science.

E. Development and use of nuclear energy

The goal: *to provide governments and other relevant users with authoritative, reliable information on a broad range of factors relevant to the current performance and future viability of nuclear power generation – including economic and resource analyses, public opinion and perceptions, advances in nuclear technology and the nuclear fuel cycle, electricity production data and nuclear knowledge management – for use in policy analysis and decision-making, as well as to provide forecasts on the future role of nuclear energy in a sustainable development perspective and within the broad context of national and international energy policies.*

Energy, particularly in the form of electricity, is a vital public resource needed to support modern life. It is an accepted responsibility of OECD governments to ensure that energy is supplied economically, securely and with minimal environmental impact. Nuclear energy generates an important share (21.5% in 2008) of the total electricity produced in OECD countries and has the

potential to play an even greater role in ensuring security of supply and in the future as governments move to low-carbon means of generation. There are many synergies among individual countries on nuclear energy topics and the associated economic issues have considerable international implications. The added value of the NEA is rooted in its engagement of a broad range of expertise in its studies, which leads to robust and credible findings and conclusions that support sound national policy-making.

To achieve this goal, the Agency will:

- analyse the economics of nuclear power across the full nuclear fuel cycle in the context of changes in electricity markets, social acceptance and technological advances, and assist member countries in evaluating the role of nuclear energy in their energy policies;
- promote international co-operation on the development of innovative nuclear energy systems;
- review the role of nuclear power in the broader perspective of climate change and sustainable development;
- assess the availability of nuclear fuel and infrastructure required for the deployment of existing and future nuclear power and identify the eventual gaps;
- assist member countries, upon request, in addressing emerging concerns related to nuclear technology and radioactive materials, including medical radioisotopes, within the constraints of financial limitations and as augmented by voluntary contributions;
- establish a communication network within and outside the OECD framework aiming at providing factual information on nuclear issues; and
- review the role of research and development in new nuclear technologies and their impact in energy generation and non-power applications.

F. Legal affairs

The goal: *to help create sound national and international legal regimes required for the peaceful uses of nuclear energy, including international trade in nuclear materials and equipment, to address issues of liability and compensation for nuclear damage, and to serve as a centre for nuclear law information and education.*

Achieving confidence in the peaceful uses of nuclear energy requires the existence of comprehensive and effective legal regimes whose goals are to protect the public and the natural environment from the risks inherent in those activities. These regimes include regulation at a national level, co-operation at bilateral and multilateral levels and international harmonisation of national

policies and legislation through adherence to international conventions. They need to be strong enough to set and enforce limits, and flexible enough to keep pace with technological advances and changing public concerns.

To achieve this goal, the Agency will:

- assist member countries in the development, strengthening and harmonisation of nuclear legislation that is based upon internationally accepted principles for the safe and peaceful use of nuclear energy;
- contribute to the modernisation of the international nuclear liability regimes and encourage the strengthening of treaty relations between interested countries to address liability and compensation for nuclear damage; and
- collect, analyse and disseminate information on nuclear law generally and on topical nuclear legal issues in particular.

G. Data Bank services

The goal: *to be the international centre of reference for its member countries with respect to basic nuclear tools, such as computer codes and nuclear data, used for the analysis and prediction of phenomena in the nuclear field; and to provide a direct service to its users by developing, improving and validating these tools and making them available as requested.*

Computer codes and basic nuclear data are fundamental tools to analyse and predict phenomena in the nuclear field. It is essential that these codes and data be internationally validated and disseminated in order to become common tools for actors in the nuclear area.

The Data Bank is formally a part of the NEA but has its own membership and a separate budget. The relationship between the Data Bank and the general NEA Secretariat is based on the principle of mutual benefit. The Data Bank benefits from, and contributes to, the general infrastructure of the NEA Secretariat and supports various parts of the NEA with its expertise.

To achieve this goal, the Data Bank will:

- develop and expand the services to scientists in its member countries;
- maintain the collection of verified and validated nuclear data and computer programs up-to-date;
- assist its member countries in preserving know-how in computer program and nuclear data validation;
- provide support for knowledge preservation efforts and the associated database development and maintenance; and
- make expertise available to other parts of the NEA.

H. Information and communication

The goal: *to provide member governments and other major stakeholders with information resulting from NEA activities and to enhance awareness and understanding of the scientific, technical, economic and legal aspects of nuclear activities as well as awareness of the NEA itself.*

The dissemination of authoritative information and rigorous analyses to policy makers and other interested stakeholders is key to enlightened, credible and transparent decision-making in the nuclear energy field. Improving the visibility of the NEA and its ability to convey the results of its work to member countries contributes to this endeavour.

To achieve this goal, the Agency will:

- provide governments, political decision-making circles, opinion leaders in member countries and other major stakeholders with specialised scientific, technical, legal and economic information, analyses and policy recommendations in a timely manner;
- meet the information needs of a diverse audience by producing publications and other printed materials, including new products to help meet evolving information needs;
- promote publications in member countries and at major international conferences;
- increase its visibility through participation by NEA management in major international fora and conferences within the OECD area and elsewhere;
- continue enhancement of the NEA website and maintaining appropriate contacts with the media; and
- reinforce its corporate identity by presenting the NEA as an objective and non-promotional source of high-quality information and rigorous analyses, and a repository of scientific and technical know-how on key aspects of nuclear energy to advance co-operation in the safe and economical use of nuclear power as well as non-power applications.

IV. Governance

The goal: *to ensure the Agency's effectiveness in establishing and carrying out a programme of work that meets the needs of member countries, in accordance with the Strategic Plan, integrating well the roles of the Steering Committee for Nuclear Energy and standing technical committees, and establishing clear methods for dealing efficiently with horizontal issues.*

A. The role of the Steering Committee for Nuclear Energy

The Steering Committee for Nuclear Energy provides oversight to ensure that the Agency carries out its activities in a manner that is in conformity with the provisions of the Statute and OECD Council decisions, responsive to the needs of NEA member countries and within the policy framework outlined by the Steering Committee. In addition, the Steering Committee provides the NEA with policy guidance to extend the Agency's focus beyond specialist areas and to allow it to play a more policy-oriented role.

To achieve this goal, with the help of the Secretariat, the Steering Committee will:

- increase its role in the preparation of the Programme of Work, including the prioritisation of activities and the identification of horizontal issues, and periodically review the mandate of the standing technical committees (STCs) to better ensure that NEA activities respond to the needs of member countries;
- assess, monitor and provide guidance in the implementation of the Programme of Work;
- pursue a policy-oriented role for the NEA on broad energy and environmental policy issues affecting nuclear energy;
- maintain close ties with the STCs, in particular to address horizontal issues by developing joint policy approaches and outputs in the Programme of Work; and
- monitor and periodically evaluate the implementation of the Strategic Plan itself.

B. The role of the standing technical committees

A standing technical committee (STC) structure has been established by the Steering Committee to carry out the NEA Programme of Work efficiently in the sectors of activity, and to develop the basic strengths of the Agency as a key international instrument of co-operation. Composed of member country experts, the STCs constitute a unique feature and important strength of the NEA, providing flexibility for adapting to new issues and helping to achieve consensus rapidly.

To achieve this goal, the STCs, with the help of the Secretariat, will:

- foster international co-operation in the NEA sectors of activity under the guidance of the Steering Committee, with a view to advancing a common knowledge base and developing common approaches and consensus by exchanging information and experience, proposing prioritised activities for the future Programme of Work and pursuing the widest possible dissemination of the results of their work;
- optimise co-ordination among themselves and treat horizontal issues efficiently by co-operating on joint studies or joint groups as necessary, and ensuring that the existing expertise in the other NEA committees is taken into account and not duplicated;
- enhance their efficiency by reviewing periodically the structure of their subsidiary bodies in light of the Agency's Strategic Plan and Programme of Work and co-ordinate their meetings with those of other international organisations; and
- ensure that the Programme of Work, in their respective areas, is established and carried out in a manner that is consistent with the NEA objectives set out in the Strategic Plan by monitoring and evaluating the level of achievement every second year.

C. Horizontal issues

A substantial portion of NEA activities are in areas that cross over more than one of the sectors described above. It is essential to ensure that these horizontal issues are satisfactorily dealt with and the relevant activities well co-ordinated within the Agency.

To achieve this goal, the Agency will ensure that methods for dealing with horizontal activities are clearly articulated in the Programme of Work and effectively co-ordinated in Agency practice, by:

- identifying horizontal issues in the Programme of Work, including the relevant activities;

- assigning the responsibility of each horizontal issue to a member of the Secretariat's senior management;
- ensuring that the standing technical committee (STC) secretariats and senior staff in charge exchange and meet regularly; and
- ensuring that the chairpersons of the STCs address the horizontal issues during their annual co-ordination meeting.

V. Interactions

The nuclear energy field is complex. No government body, international organisation or industry group can, by itself, provide all the necessary policy, regulatory, scientific and technical guidance needed to ensure the safe, environmentally friendly and economical use of nuclear energy for peaceful purposes. Through its interactions, the NEA benefits from outside input and experience, and enhances the value of its work.

Authoritative, balanced NEA involvement in the international nuclear energy arena, drawing on the Agency's competence and experience, brings value to member countries. NEA participation in studies of other relevant organisations should be encouraged, as should NEA exchanges with relevant sectors of civil society. Strengthened co-operation with other international organisations results in greater efficiency by identifying areas of synergistic effort, clarifying roles and areas of focus, and helping to avoid duplication of effort. The help of member countries is key to ensuring consistency and complementarity of the activities of the relevant international organisations when approving their respective programmes of work.

A. Working within the OECD family

The goal: *to bring NEA expertise and the results of its work into the broader energy, socio-economic and environmental OECD context and to help provide member countries with a consistent and balanced OECD view on energy issues.*

Given the significant nuclear fuel resources available and the economic and environmental benefit nuclear power can provide as an important non-fossil source of electricity, a discussion of the contributions made by nuclear energy in the context of sustainable development has been taking place within the OECD, and needs to be continued and expanded. The case for nuclear energy as a potential contributor to sustainable development will be robust if certain conditions are met to demonstrate that this form of energy is being properly managed. The NEA can provide the OECD with the necessary input on the various aspects of nuclear power for further analyses in a broad context. More generally, the NEA will propose its participation in any OECD co-ordinating group in which the nuclear dimension and the Agency's experience might be beneficial, or when NEA activities can benefit from interaction with OECD experts in a broader context.

To achieve this goal, the Agency will:

- interact with the OECD as a whole by, in particular, participating in horizontal work in such areas as sustainable development and the impact of market liberalisation;
- interact with the International Energy Agency (IEA) in clearly defined areas of competence by organising systematic cross-participation in the respective relevant committees and governing bodies, mutually exchanging analyses of common interest and developing joint studies and publications;
- interact with the Environment Directorate by exchanging analyses of common interest for incorporation in studies and work; and
- interact with the Directorate for Science, Technology and Industry (DSTI), the Economics Department and the Public Governance and Territorial Development Directorate by participating in general debates of common interest and providing NEA expertise in the field of nuclear energy.

B. Working with the International Atomic Energy Agency (IAEA) and other international bodies

The goal: *to ensure complementarity and increase synergy with the International Atomic Energy Agency (IAEA), the European Commission and with other international bodies as well as to optimise resources, capitalise on NEA expertise and disseminate the results of NEA work to a wider audience.*

Various other international bodies work in similar areas as the NEA, although their objectives and membership are different. It is therefore important to co-ordinate efforts so that they complement each other, duplication of effort is minimised and the results are properly conveyed to other organisations.

To achieve this goal, the Agency will:

- continue its co-operation with the International Atomic Energy Agency (IAEA) by undertaking efforts to minimise overlap and avoid duplication by adhering fully to the co-ordination and consultation mechanisms provided for in the existing Agreement between the two agencies, ensuring cross-participation in relevant committees and governing bodies and by undertaking activities, meetings and conferences jointly in appropriate areas;
- enhance interaction with other relevant international organisations, such as the World Health Organisation and the International Labour Organisation, as appropriate, and with other bodies on a case-by-case basis; and
- enhance interaction with other groups by co-operating with the G8 and G20 as appropriate, and other bodies, on a case-by-case basis.

C. Liaising with industry and other stakeholders

The goal: *to maintain contacts with industry and other stakeholders, and to collect and utilise relevant information and data in NEA work, as appropriate.*

NEA interaction with industry will be based upon the recognition that the NEA is an intergovernmental organisation whose member countries determine its programme and the appropriate degree of industrial involvement with the Agency. However, the liberalisation of electricity markets and the privatisation of production capacities are giving a major role to the industry. Technical and economic aspects of nuclear power in the future are largely in its hands. The NEA can benefit further from industry contributions that the latter may be able to provide to the work of the standing technical committees.

To achieve this goal, the Agency will:

- establish useful interaction with key organisations and groups representing the nuclear industry in member countries to explore appropriate co-operation and systematically exchange information; and
- increase exchanges with industry that could be beneficial to NEA activities by encouraging industry participation in a task-oriented and flexible way, taking care not to enter into commercial activities but respecting competence of different actors, and by co-ordinating with member countries the appropriate participation of industry bodies in specific NEA activities, in general excluding regulatory activities.

D. Co-operating with non-member countries

The goal: *to establish effective relationships with non-member countries whose participation in the NEA programme can be mutually beneficial, limiting further membership to countries that can make a significant contribution to the Agency.*

Additional countries are expected to apply for OECD and NEA membership in the future. It is recognised that new membership or outreach should provide significant added value to NEA member countries, provided certain conditions are met. Any proposal for co-operation or membership will be considered on the basis of a careful evaluation of potential mutual benefit and of possible impacts on the NEA's traditional strengths.

To achieve this goal, the Agency will keep its membership relatively small and homogeneous, by:

- seeking to limit new membership to those countries that are significant players in the nuclear field and that can provide added value to the Agency's activities;

- carefully analysing the credentials of non-member countries that indicate an interest in joining the Agency;
- evaluating a potential member according to criteria such as the nature and extent of its nuclear programme; its international commitments, especially regarding non-proliferation, and co-operative activities in the nuclear field; the organisation of its nuclear programme, including in particular the viability and independence of the nuclear regulatory authority; its domestic nuclear legislation; its resources, including whether it is receiving technical and financial assistance; its ability to provide technical specialists who can contribute to NEA activities; its contribution as an observer in NEA activities; and its approach to public information; and
- discouraging membership applications from countries about which serious questions are likely to be raised with respect to the above criteria.

The NEA may also establish forms of co-operation with non-members which help them and provide added value to the Agency's programme, consistent with financial, political and practical realities and OECD policy on outreach, by:

- indicating openness to involving selected non-member countries with good non-proliferation credentials, particularly those that are significant players in the nuclear field and that can provide added value to the Agency's activities on a step-by-step basis, taking into account OECD non-member country priorities, budgetary constraints affecting the Agency and the anticipated abilities of countries to contribute to NEA activities and finance their own participation;
- assisting member countries in their efforts to improve nuclear practices in non-member countries;
- working with the IAEA in areas where non-member countries can benefit from co-ordinated action by the two agencies;
- building on the 2007 NEA-Russian Federation Joint Declaration, enhance Russian participation in selected NEA activities, when such participation is of sufficient interest to the Agency, and seeking opportunities to organise internationally funded research projects in the Russian Federation that are technically attractive and cost-effective;
- developing co-operation with China on a step-by-step basis, with a view to achieving mutually beneficial results; and
- exploring the potential for mutually beneficial co-operation with India on nuclear safety initiatives and other areas, as appropriate.

Annex

Authority for the Nuclear Energy Agency (NEA) and its activities

Authority for the NEA

Under Article 9 of the Convention of the Organisation for Economic Co-operation and Development (succeeding the Organisation for European Economic Co-operation), the Council establishes subsidiary bodies for the achievement of the aims of the Organisation. Bodies set up by the Council include main committees reporting directly to it, as well as other subsidiary bodies known by other names.

This is the case of the OECD Nuclear Energy Agency (NEA), which was established by a Council Decision of 17 December 1957 embodying its Statute, as amended by subsequent Decisions of the Council [C(77)183(Final), C(92)220 and C(95)157(Final)].

The Statute (Art. 1.b) sets out the purpose of the Agency as follows:

"Taking due account of the public interest and mindful of the need to prevent the proliferation of nuclear explosive devices, the purpose of the Agency shall be to further the development of the production and uses of nuclear energy, including applications of ionizing radiations, for peaceful purposes by the participating countries, through co-operation between those countries and a harmonization of measures taken at the national level."

Authority for the Steering Committee for Nuclear Energy

The Statute (Art. 2) establishes the authority for the Steering Committee for Nuclear Energy as follows:

"The tasks assigned to the Agency shall be carried out, under the authority of the Council, by the Steering Committee for Nuclear Energy, by the bodies which the latter has established... to assist it in its work or perform tasks of common interest to a group of countries, and by the Secretariat of the Agency which shall form part of the Secretariat of the Organisation."

In addition, Art. 3 of the Statute specifies that:

"The Steering Committee shall be competent to deal with any question relevant to the purpose of the Agency under conditions resulting from the provisions set forth below and from other applicable decisions of the Council."

Authority for the NEA standing technical committees

The creation and the terms of reference of such committees is dealt with under the Statute Art. 12.a:

> *"The Steering Committee may establish such commissions and working parties as it may consider necessary to assist it in the performance of its duties and entrust them with the execution of any task relevant to the purpose of the Agency."*

The terms of reference of the NEA standing technical committees are approved by the Steering Committee.

Authority for the Data Bank

The Data Bank was created by decision of the Steering Committee (7 December 1977) based on Art. 5.b of the Statute. At the same meeting, the Steering Committee adopted its terms of reference [NE(77)28].

Authority in respect of NEA main areas of activity

The NEA areas of activity are based on three articles of the Statute:

Article 4.a

> *"The Agency shall promote technical and economic studies and undertake consultations on the programme and projects of participating countries relating to the development of research and industry in the field of the production and uses of nuclear energy for peaceful purposes, in collaboration with other bodies of the Organisation in matters falling within their competence."*

Article 7.a

> *"The Agency shall encourage the development of research into the production and uses of nuclear energy for peaceful purposes in participating countries."*

Article 8.a

> *"The Agency shall:*
>
> *(i) contribute to the promotion, by the responsible national authorities, of the protection of workers and the public against the hazards of ionising radiations and of the preservation of the environment;*
>
> *(ii) contribute to the promotion of the safety of nuclear installations and materials by the responsible national authorities;*
>
> *(iii) contribute to the promotion of a system for third party liability and insurance with respect to nuclear damage;*
>
> *(iv) ..."*

Documentation

The following official documentation is produced regularly by the NEA in respect of its programme, budget, results and committee activities:

- biannual programme of work and estimates of expenditure;
- reports by the Director-General to the Steering Committee (twice a year);
- annual reports by the NEA standing technical committees on the status of their activities;
- annual report on the activities of the Nuclear Energy Agency;
- NEA chapter in the *OECD Annual Report*;
- *NEA News* magazine (twice a year).

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 31 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1 February 1958 under the name of the OEEC European Nuclear Energy Agency. It received its present designation on 20 April 1972, when Japan became its first non-European full member. NEA membership today consists of 28 OECD member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information.

The NEA Data Bank provides nuclear data and computer program services for participating countries. In these and related tasks, the NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has a Co-operation Agreement, as well as with other international organisations in the nuclear field.

Also published in French under the title:

Le plan stratégique de l'Agence pour l'énergie nucléaire – 2011-2016

OECD PUBLICATIONS, 2 rue André-Pascal, 75775 Paris Cedex 16

ISBN 978-92-64-99135-4
Printed in France, 5 July 2010.