



ISOE Contributions to the Work of CRPPH: Past and Future

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OECD/NEA Membership



- Australia
- Austria
- Belgium
- Canada
- Chile
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Ireland
- Israel
- Italy
- Japan
- Korea
- Luxembourg
- Mexico
- Netherlands
- New Zealand
- Norway
- Poland
- Portugal
- Russia
- Slovak Republic
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- United Kingdom
- United States

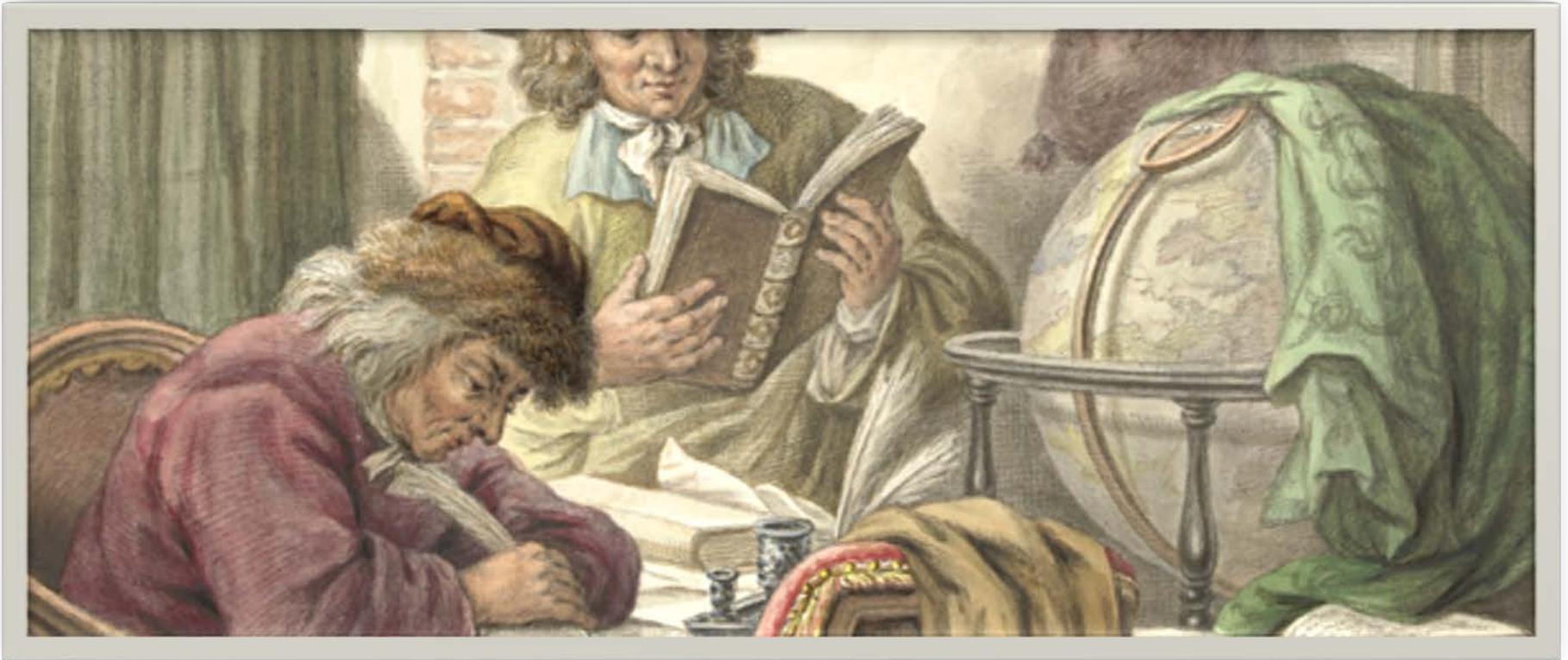
OECD and NEA member
OECD member, not NEA
NEA member, not OECD

The NEA: A Forum for Co-operation for the Most Advanced Countries in the World

- Founded in 1958
- 31 member countries
- **7 standing technical committees**
- 75 working parties and expert groups
- **21 international joint projects**



CRPPH & ISOE: CHRONICLE



CRPPH: HISTORICAL PERSPECTIVE

1957: The Organisation for European Economic Co-operation (OEEC) established the **Health and Safety Sub-Committee**, which was charged with the implementation of a programme in the field of RP

(60th anniversary in 2017!)

1958: The OEEC **European Nuclear Energy Agency (ENEA)** was established
The Sub-Committee was attached to the Steering Committee for Nuclear Energy

1972: ENEA received its present designation **NEA**, when Japan became its first non-European full member

1973: The mandate of the Sub-Committee was revised, establishing the **Committee on Radiation Protection and Public Health (CRPPH)**

CRPPH & ISOE: HISTORICAL PERSPECTIVE

1992: Establishment of the ISOE (25th anniversary in 2017!), after a 2-year pilot programme

- a **Joint Project** under Article 5 of the NEA's Statute
- jointly promoted and sponsored by the NEA and the IAEA (since 1993), providing a **Joint Secretariat** (since 1997)(**10th anniversary in 2017!**)

1993: The **mandate** of the CRPPH was **revised** to better reflect the Committee's relationship with the ICRP, as well as its joint international project co-ordination work in such areas as e.g. **occupational exposure (the ISOE programme)**

NEA, CRPPH & ISOE: RELATIONSHIP

ISOE does not report directly to the CRPPH nor requests its approval for its programme of work

However, the ISOE programme **cooperates** extensively with the CRPPH on the Committee's operational radiological protection work

The NEA Secretariat serves as the ISOE Secretariat, and the **ISOE reports to the NEA Steering Committee through the CRPPH**

CRPPH: MANDATE

Based on the Committee's current mandate, the CRPPH is responsible for **RP studies** in the light of the following goals:

- to provide its Members with a **high-level, visible forum** for exchange and discussion
- to seek **common understanding** of these issues
- to advance the “**state-of-the-art**” in RP theory and practice
- to advance concepts to better adapt RP to broader **social dimensions**
- to promote **international co-operative projects**

- MANDATE
- STRATEGIC DIRECTION

Committee on Radiation Protection and Public Health (CRPPH)

Chair: Mr Mike Boyd, USA
Secretariat: Dr Ted Lazo

Information System on Occupational Exposure (ISOE)

Chair: Dr Tae-Won Hwang, Rep of Korea
Vice-Chair: Dr Swen-Gunnar Jahn, Switzerland
Secretariat: Mr Aleksandr Rakhuba and Ms Olvido Guzmán

Working Group on Data Analysis (WGDA)

Chair: Mr Staffan Hennigor, Sweden
Vice-Chair: Mr Derek Hagemeyer, USA
Secretariat: Mr Aleksandr Rakhuba and Ms Olvido Guzmán

Working Group on Radiological Protection Aspects of Decommissioning Activities at Nuclear Power Plants (WGDECOM)

Chair: Mr J. Mike Hale, USA
Vice-Chair: Mr Ignacio Calavia, Spain
Secretariat: Mr Aleksandr Rakhuba and Ms Olvido Guzmán

Working Party on Nuclear Emergency Matters (WPNEM)

Chair: Ms Patricia Milligan, USA
Vice-Chair: TBD
Secretariat: Ms Olvido Guzmán and Mr Aleksandr Rakhuba

International Nuclear Emergency Exercise (INEX-5)

Chair: Mr Vincent McClelland, USA
Secretariat: Ms Olvido Guzmán and Mr Aleksandr Rakhuba

Expert Group on Lessons Learnt from Non-Nuclear Events (EGNE)

Chair: Ms Patricia Milligan, USA
Secretariat: Ms Olvido Guzmán and Mr Aleksandr Rakhuba

Expert Group on the Implications of Recommendations (EGIR)

Chair: TBD
Secretariat: Dr Ted Lazo

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Expert Group on Exclusion from Paris Convention (EGPC)

Chair: TBD
Secretariat: Dr Ted Lazo

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Expert Group on the Radiological Protection Aspects of the Fukushima Accident (EGRPF)

Chair: Mr Mike Boyd, USA
Secretariat: Dr Ted Lazo

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Expert Group on Legacy Management (EGLM)

Chair: TBD
Secretariat: Dr Ted Lazo

**Joint Undertaking:
Organ Dose Variability
with Gender, Age and
BMI**

WORKSHOPS

Workshop on Safety Food (Fukushima, 8-10 November 2016)

PC Chair: Toshimitsu Homma, Japan
Secretariat: Dr Ted Lazo

Workshop on Management of Non-Nuclear Waste (Mid 2017)

PC Chair: TBD
Secretariat: Dr Ted Lazo

ACTIVITIES UNDER CONSTRUCTION

- Social Media
- Evacuation
- Human capital

ISRP

CRPPH & ISOE: A BRIGHT PAST



ISOE & CRPPH 2004-2006

Chair: Jean-Yves Gagnon (Canada)

The ISOE was requested by the CRPPH (and agreed) to consider, in the strategic review of its work and products, the possibility of adding several **new types of data collection**, including:

- **environmental discharge data**, such as: activity released; estimated public doses;
- **accident Information**, such as: description of radiological accidents; associated doses; associated lessons
- **OE other than to radiation**

The experience and expertise from the ISOE Programme was decided be **used as an asset to Generation IV** discussions

According to the CRPPH, the ISOE seemed to be a “**mature tool**”, but that there remained a **lack of visibility** and **full clarity of value added**

The ISOE WG on Operational Radiation Protection (**WGOR**) developed and published a document on “**Optimisation in Operational RP**”, with the aim to share practical aspects of RP and experiences of ORP with the international RP community (incl. CRPPH)

An ISOE web page was offered for easy data analysis, and the ISOE database was migrated to a web-based platform.

The revamped **ISOE Network** (www.isoe-network.net) was formally launched to provide the ISOE membership with a “one-stop” web-based information and experience exchange portal

CRPPH Expert Group on Occupational Exposure (EGOE)

- A new Expert Group was formed under CRPPH to **explore policy and regulatory issues in ORP**
- The objective of EGOE was to identify/analyse ORP issues across many sectors, **drawing on experience from ISOE**. This would:
 - have the benefit of **enhancing links between CRPPH and ISOE**;
 - leverage ISOE operational experience to better address policy and regulatory topics **of interest to CRPPH**; and
 - provide ISOE with an opportunity to have **more input to relevant policy-related issues** while maintaining independence

CRPPH Expert Group on Occupational Exposure (EGOE)

- The ISOE Steering Group considered its participation in EGOE, but **did not decide** at the time whether or not to actively participate, expressing concerns that EGOE could **draw significant resources** from the ISOE programme, and EGOE documents could take on **too much of a regulatory context** yet imply the agreement of ISOE utilities because of their involvement

ISOE & CRPPH 2006-2008

Chair: Wataru Mizumachi (Japan)

A new **ISOE Expert Group on Work Management** was launched (under WGDA) to develop an update to the successful 1997 report on “**Work Management in the Nuclear Power Industry**”, in order to capture and share new experience and technology in occupational radiation dose reduction and 15 years of info exchange under the ISOE programme

Additionally, a new ad-hoc **Task Team on Decommissioning** was set up to improve the data collection and analysis aspects of the DB for reactors undergoing decommissioning, incl. possible linkages with the NEA’s **Co-operative Programme on Decommissioning (CPD)** (another joint undertaking of the NEA) to improve related information exchange

An ad-hoc **ISOE Group on the BSS Revision** was created, with a purpose to review BSS drafts as they were made available with respect to good practice in occupational exposure

CRPPH Expert Group on Occupational Exposure

- The ISOE Steering Group approved **participation** in the 1st phase scoping activities of the EGOE and the **continued involvement**
- The EGOE committed to maintain **close cooperation, exchange of information and coordination of activities** with **CRPPH, ISOE**, European ALARA network, and other CRPPH groups in order to avoid duplication and overlapping with already established activities

The CRPPH noted the contribution that ISOE had made to occupational dose reduction over its 15 years of activity, and encouraged the programme to continue to adjust to new challenges **across the full reactor life cycle**, particularly the contribution that ISOE could make to **new nuclear build and decommissioning**

The potential value of linking **reactor discharge data** to the extensive occupational data was identified by the CRPPH in order to provide a unified resource for benchmarking and extracting operational trends
ISOE was requested to **explicitly consider this question**

In response to discussions at the 2008 CRPPH annual meeting, ISOE investigated possible options to **providing data to the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)** with a view towards improving co-ordination with other related programmes and further raising the ISOE profile

The CRPPH thanked the ISOE programme for its efforts, and **encouraged them in their discussions with UNSCEAR** so as to find a solution that will **avoid duplication** of efforts in NPP occupational exposure data collection

ISOE & CRPPH 2008-2010

Chair: Vasile Simionov (Romania)

While the ISOE programme is generally a closed system, it was **increasingly viewed as a resource** (e.g. by CRPPH, EGOE, UNSCEAR, etc.) to assist in the improvement of OE management

- The completion and publication (2009) of the report on “**Work Management to Optimise ORP in the Nuclear Power Industry**”, which proved to be very popular
- The completion of the ISOE programme’s **transition to a fully web-based information exchange platform**
- The input of ISOE into the **BSS revision** process from the point of view of ORP
- The significant participation of ISOE members in the **EGOE**
- The approval of co-operation between ISOE and **UNSCEAR** on provision of data

The CRPPH noted that the data communicated by ISOE to **non-participants** is generally plant-level collective dose data, and asked the ISOE programme to **consider exploring the possibility of communicating other, more detailed types of data already collected**

ISOE & CRPPH 2010-2012

Chair: Gonzague Abela (France)

Collaborative efforts with the CRPPH continued, providing **input** to the discussion of the international **BSS draft**

Co-operation with UNSCEAR progressed, developing an efficient mechanism to provide OE data and assisting UNSCEAR to update its data collection system by providing experience from the ISOE approach

The **Non-binding MoU** between the **UNSCEAR Secretariat** and **ISOE MB** was signed in 2011

The CRPPH encouraged ISOE to continue its active involvement with **EGOE** and **EGBAT** (Expert Group on Best Available Techniques)

The CRPPH suggested that ISOE could consider expanding to also **collect and analyse data from other areas, such as research reactors**

The CRPPH thanked the ISOE Programme for:

- Its **well established mechanisms** for information exchange;
- Its **ongoing pilot project** for collecting necessary data from US utilities, which was supported by USNRC and ORAU;
- Its proposed activities on (1) **Management of high radiation area worker doses**, and (2) **Consolidated list of adequate personal protective equipment/clothing for emergency workers, and use of individual monitors**, in support of the Japanese Fukushima recovery efforts

ISOE & CRPPH 2012-2014

Chair: Willie Harris (USA)

The CRPPH noted that the ISOE sharing of its data with UNSCEAR was a **service to member countries** and a **recognition of programme quality**

The support given by the ISOE to the following **3 case studies** of the EGOE work was very much appreciated by the CRPPH:

- 1. ORP criteria for designing new NPPs***
- 2. Dose Constraints in ORP Regulations and Practices***
- 3. Policy and Practical Issues in ORP in NPPs***

Expert Group on
Primary Water
Chemistry and
Source-Term
Management (**EGWC**)
(2011-2013):

*“Report on RP
Aspects of Primary
Water Chemistry and
Source-Term
Management”*
(2014), reflecting the
current state of
knowledge,
technology and
experience

Expert Group on ORP
in Severe Accident
Management and
Post-Accident
Recovery (**EGSAM**)
(2011-2014):

Interim Report on
“**ORP in Severe
Accident
Management and
Post-accident
Recovery**” (as input
for the June 2014
ISOE WS to identify
best ORP approaches
in strategies and
practices)

The CRPPH was **very
appreciative** of the
work of the ISOE
programme and their
contribution to and
willingness to support
the Committee’s work

Technical Cooperation Agreement with the Nuclear Energy Institute (NEI) to facilitate the exchange of information on the optimization of ORP in the operation and decommissioning of NPPs

The CRPPH supported the **ISOE/CPD** co-operation in **decommissioning** and the proposal to **establish a Joint ISOE/CPD Working Group** on RP Aspects of Decommissioning Activities at Nuclear Facilities

The CRPPH suggested that the ISOE Programme should consider **adding individual doses** to its databases in some fashion, to supplement collective dose data

ISOE & CRPPH 2014-2016

Chair: Tae-Won Hwang (Rep. of Korea)

Final Report (2015) by EGSAM on “**ORP in Severe Accident Management and Post-accident Recovery**”, focusing on RP management and organization, RP training and exercises related to severe accident management, facility configuration and readiness, worker/responder protection, monitoring and managing radioactive releases and communication and key lessons learned especially from TMI, Chernobyl and Fukushima Dai-ichi accidents

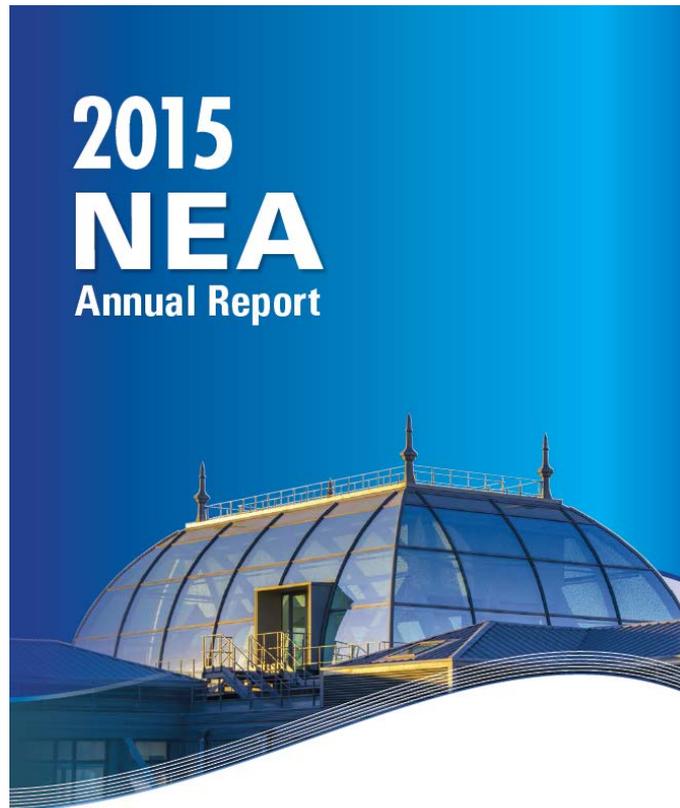
The ISOE was granted **special liaison status** with the ICRP

A new **Working Group on RP Aspects of Decommissioning Activities and NPPs (WGDECOM)** was established

Objective: to provide a forum for experts in order to develop a process within the ISOE programme to better share ORP data and experience for NPPs in some stage of decommissioning or in preparation for decommissioning

ISOE Strategic Programme Plan (2016-2019) was adopted and published, providing overview of the direction of the ISOE programme in order to fulfil its mission as a leading network in ORP at NPPs

NEA Annual Report 2015



Joint Project

The ISOE

Since its creation in 1992, the Information System on Occupational Exposure (ISOE), sponsored jointly by the NEA and the IAEA, has been facilitating the exchange of data, analysis, lessons and experience in occupational radiological protection (RP) at nuclear power plants worldwide. It maintains the world's largest occupational exposure database and a network of utility and regulatory authority RP experts. The new ISOE terms and conditions, covering the period 2012-2015, came into force on 1 January 2012 and have been revised seven times since then, mostly to incorporate new members. As of 31 December 2015, the ISOE programme includes the participation of 76 utilities from 29 countries, and 22 regulatory authorities from 20 countries. Authorities from the United Arab Emirates and the Republic of Belarus joined the ISOE in 2015.

Four supporting ISOE Technical Centres (Asia, Europe, North America and the IAEA) manage the system's day-to-day technical operations of analysis and exchange of information and experience. The ISOE occupational exposure database contains information on occupational exposure levels and trends at 482 reactor units (401 operating units and 81 units in cold shutdown or at some stage of decommissioning) in 29 countries, thus covering about 91% of the world's operating commercial power reactors. The ISOE database, publications and annual symposia, along with the ISOE Network

website, facilitate the exchange among participants of operational experience and lessons learnt in the optimisation of occupational radiological protection.

In 2015, the ISOE programme continued to concentrate on the exchange of data, analysis, good practices and experience in the area of occupational exposure reduction at nuclear power plants, and on improving the quality of its occupational exposure database. The ISOE regional Technical Centres continued to support their members through specialised data analyses and benchmarking visits. Key outcomes of work during 2015 included the preparation of the ISOE Strategic Programme Plan for 2016-2019; establishment of a new Working Group on Radiological Protection Aspects of Decommissioning Activities in Nuclear Facilities (WGDECOM); development of several new, standard, push-button database analyses; and the signing of a Technical Co-operation Agreement with Enresa (Spain) to facilitate the exchange of information and experience on the optimisation of occupational radiation protection in the operation and decommissioning of nuclear power plants.

The ISOE programme organised an International ALARA Symposium in Brazil (26-27 May) and two regional ALARA Symposia in North America (United States, 12-14 January) and Asia (Japan, 9-10 September).

CRPPH & ISOE: AN EVEN BRIGHTER FUTURE



CRPPH 74, April 2016, OECD, Paris

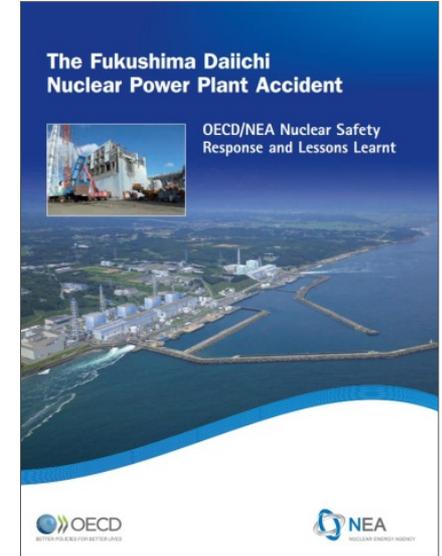
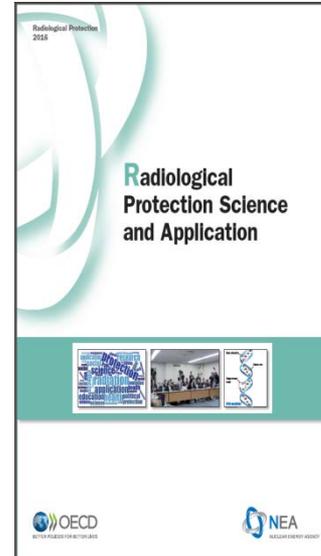
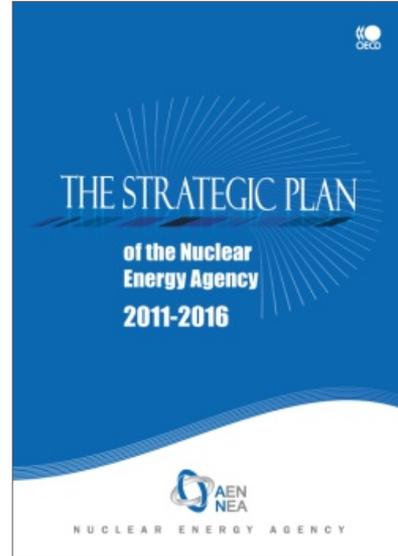
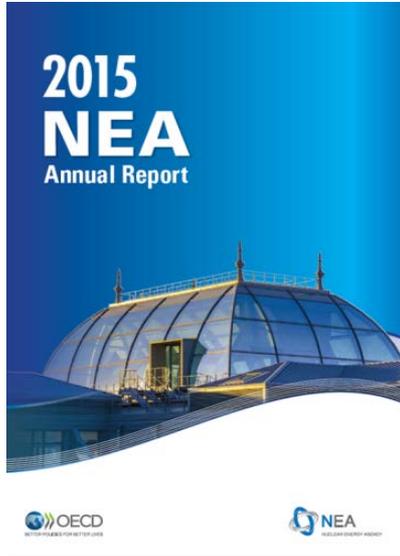


Item 4.2 ISOE

The Committee:

- noted the progress on the ISOE programme and the accomplishments for 2015
- supported the ISOE programme of work for 2016
- Appreciated the willingness of the ISOE programme and valued ISOE contribution to provide operational experience to the work of the CRPPH
- Valued the contribution of ISOE to the sharing of experience (priority for CRPPH)
- Considered that one of the benefits of ISOE has been the increase of safety culture. This could be a possible joint cooperation CRPPH-ISOE





All NEA publications and institutional
documentation are available at
www.oecd-nea.org

OECD Nuclear Energy Agency
International Atomic Energy Agency



INFORMATION SYSTEM ON OCCUPATIONAL EXPOSURE

THANK YOU FOR YOUR ATTENTION

<http://www.isoe-network.net>