

NEA/ISOE(2016)3



# **[ ISOE STRATEGIC PROGRAMME PLAN ]**

## **2016-2019**

## ***Introduction***

Many of the goals established in the Programme of Work of Information System on Occupational Exposure (ISOE) for the four-year period (2012-2015) were successfully accomplished during this period. ISOE remains a scientifically productive, financially stable, and leading NPPs focused occupational exposure network. In looking to the future, the Management Board of the ISOE programme foresees an increasing need for its technical reports on a variety of radiation protection issues, for the collection and exchange of good radiological protection practices and lessons learned, and for regional and international ISOE ALARA Symposia where dose reduction experience is exchanged.

The ISOE programme is the world's most comprehensive source of experience and information for occupational exposure management at nuclear power plants. To continue and to achieve this level of value, the objectives of this document are to describe the primary strategic goals of ISOE over the 2016–2019 period, parallel to the renewal of the ISOE Terms and Conditions, and to offer its members from 31 countries a variety of resources for occupational exposure management. In more than 20 years of sharing information and operational experience on occupational dose reduction at NPPs, the ISOE programme has contributed to global networking for radiological protection professionals, and to effective radiological benchmarking. The commitment of official participants from nuclear electricity utilities and national regulatory authorities to the core of ISOE business -“implementation of ALARA” in terms of competence, experience feedback, preventive measures and long-term planning/strategies - has also grown.

The Strategic Programme Plan for 2016–2019 provides an overview of the direction of the ISOE programme in order to fulfill its mission as a leading network in operational radiation protection (ORP) at NPPs. The specific activities to be undertaken in meeting programmatic goals, and the procedures to be used, are also described. Although the programme focus is on meeting international needs, ISOE will continue to place an increasing emphasis on obtaining international recognition and stature as a valuable resource for guidance in the field of ORP at NPPs.

The preparation of this Strategic Programme Plan was a collective effort by the ISOE Bureau, Technical Centers, and the Joint NEA/IAEA secretariat. The primary intent of the Strategic Plan is to inform ISOE's official participants, and other individuals and organizations interested in the work of ISOE on the future areas of emphasis in ISOE's activities. ISOE welcomes suggestions and the participation of international organizations and others, in its continuous efforts to broaden ISOE's activities into all aspects of ORP at NPPs.



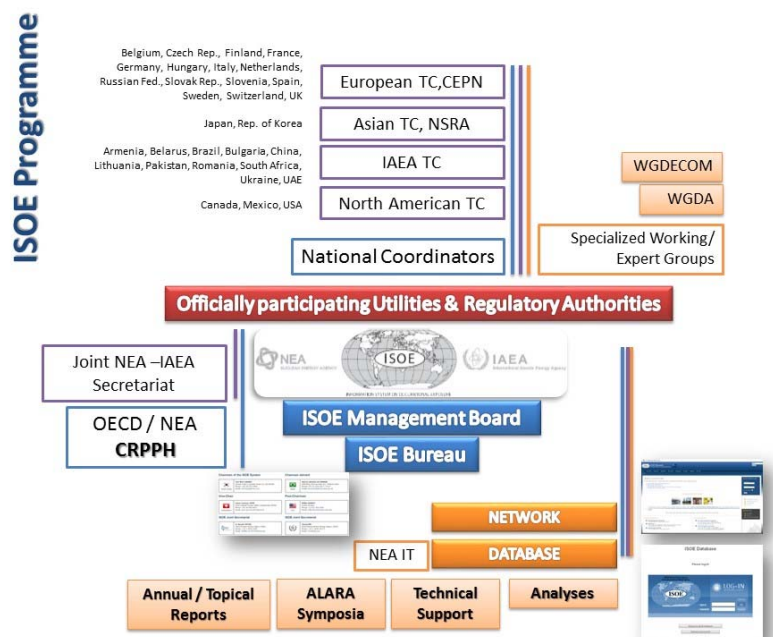
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## ISOE Programme, at a glance

The ISOE programme is jointly sponsored by the OECD Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA), and has facilitated the exchange of data, analyses, lessons and experience in occupational radiological protection (ORP) at nuclear power plants worldwide since its creation in 1992. It maintains the world's largest database of NPP occupational exposure, and a network of utility and regulatory authority RP experts. Four ISOE Technical Centers manage day-to-day technical operations. The ISOE programme reports annually to the NEA Steering Committee through the NEA's Committee on Radiation Protection and Public Health (CRPPH), and cooperates extensively with the CRPPH and with relevant international ALARA networks on operational radiological protection work. The basic operation of ISOE is financed on a decentralized basis, by the participating utilities and regulatory authorities.

As of January 1<sup>st</sup>, 2016, the ISOE programme includes 76 nuclear utilities in 29 countries and regulatory authorities of 24 countries. The ISOE database includes occupational exposure information for 401 operating units, and 81 units in cold-shutdown or some stage of decommissioning in 29 countries, covering about 91% of the world's operating commercial power reactors.



### Main ISOE activities include:

- Annual reporting of reactor unit doses, key work activities and selected dose rate results,
- Collection and exchange of good radiological practices and lessons learned,
- Preparation of working / expert group reports on a variety of radiation protection issues, and
- Regional and International ISOE ALARA Symposia where international dose reduction experience is exchanged.

## ***Future Directions***

In November 2014, the ISOE Management Board considered establishing a new strategic plan, according to the expectations of participating utilities and regulatory authorities, with clear identification of goals and criteria for improvements / modifications.

### **Factors affecting the decision to establish a new strategic plan included the following:**

1. The need for member utilities to develop and maintain effective and efficient ORP programs across the construction, operating lifetime and decommissioning of the reactor(s), and to support extension of plant operating lifetimes via relevant regulatory processes;
2. The need to anticipate, respond to and resolve societal challenges to the operation of NPPs. This includes the support of effective and efficient regulatory licensing, regulatory and licensee oversight of plant operations, societal demands on the regulator and licensees (for excellence, transparency, low costs, and low risks), and for some countries and utilities, effective support of the transition from operation via decommissioning to greenfield;
3. The will to support of the development and maintenance of ORP programs in the increasing number of countries using electricity generation by NPPs. In some countries, this growth may involve the creation of new regulatory and operational structures for radiological protection, the involvement of personnel who have not had the opportunity for hands-on ORP, starting with information and instruction as well as education and training in radiological protection;
4. An increase in demand for value and accountability on the ISOE program as a result of its maturity; and
5. The need to reconsider the amount and distribution of ISOE programme standing costs, and processes for ISOE members to optimize their management.

A core issue for ISOE is the implementation of optimization of radiation protection that is the ALARA programme. At ISOE member utilities, this is the continuing evaluation and effective use of means to reduce occupational dose at a reasonable cost. A historical view would suggest that for many years, improvements were being made in the management of individual and collective doses, but there is still a challenge to maintain the trends of reducing doses, especially in a context of aging of NPPs and increasing maintenance work due to the extension of operation lifetime for some of them.



## Strategic Programme Plan

Collectively, these observations suggest the need to establish a strategic plan which would:

- a. meet the expectations of the members (and other customers) of the ISOE programme,
- b. support the extension of the programme to countries newly embarking on the use of nuclear power for electricity generation, and presumably to “nuclear” utilities and authorities which are not yet ISOE members including other nuclear facilities connected to the production of nuclear power (fuel cycle plants, research facilities, waste management and storage facilities),
- c. continue to explore approaches to maintain worker doses ALARA, while considering safety-related and societal (e.g., environmental) challenges, and appropriately addressing economic aspects of electricity generation via nuclear power, and
- d. develop collaborative efforts with other appropriate networks and programmes.

## Goals for 2016-2019 Programme of Work

In many ways, it may be appropriate to combine objectives “a” and “b” above, to ensure the ISOE program meets the needs of current and future members in the development and maintenance of effective and efficient ORP programs, including the means to use the program for cost- and value-optimized suggestions for and benchmarking of ORP programs.

The strategic goals for the ISOE 2016-2019 Programme of Work include:

➤ **Continuation of current ISOE activities, in particular:**

1. Organizing Regional and International ISOE ALARA Symposia;
2. Collecting annual occupational exposure data for the ISOE database;
3. Regularly updating the content of ISOE network website;
4. Promoting the use of the ISOE forum;
5. Facilitating the organization of benchmarking visits; and
6. Promoting the Working Group on Radiological Aspects of Decommissioning Activities in Nuclear Power Plants (WGDECOM) and the Working Group on Data Analysis (WGDA).

➤ **New activities of ISOE members (and delegates from organizations with which ISOE has technical cooperation agreements):**

The programme will include the following anticipated new activities of ISOE members (and delegates from organizations with which ISOE has technical cooperation agreements):

1. Examining refurbishment and plant life extension activities in order to share information, best practices, and lessons learned to optimize protection and resource expenditures for NPPs facing similar opportunities.
2. Establishing a process whereby ISOE documents are reviewed on a regularly scheduled basis for potential update or modification. The process and review schedule will be designed to ensure that valuable documents retain relevance and applicability while not unduly burdening the WGDA, Technical Centers, and Expert Groups to continually update documents without an identified need or value added for the modification.
3. Establishing a more formalized process and schedule for the review of the website content and functionality in regards to its effectiveness in disseminating information to inform ORP assessment and decision making. Proposed modifications or improvements will be evaluated by considering the added value of the modification against the limitation of available resources.
4. Establishing information exchange about education and training schemes, programs and syllabi for radiation protection professionals as well as information and instruction tools for radiation workers, exposed persons and the interested public.
5. Expanding the use of technical cooperation agreements with appropriate international organizations which are engaged in the promotion and advancement of excellence in ORP and resource optimization.
6. Pursuing the collection, analysis, and sharing of data concerning post-Fukushima efforts at NPPs and associated occupational dose.
7. Pursuing the examination of situations and events that could lead to unexpected and unplanned increases in dose. This effort would include examination of the root causes of such situations, the probability or risk of occurrence, and the contribution to total dose. Such an analysis and information sharing by ISOE would allow the RPMs and ALARA planners to better understand the potential for unanticipated dose.



## TECHNICAL COOPERATION AGREEMENTS

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### **Memorandum of Understanding with EDF (March 2011)**

- *Sharing information, operating experience and data*
- *Transfer of results for CZT measurements*
- *ISOE- agree to facilitate the transfer of NPP CZT measurements data and posting on the network*
- *Input for the Expert Group report on Primary Water Chemistry and Source-term Management (published in April 2014 and available at ISOE network web-site)*

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### **Framework for cooperation between the UNSCEAR secretariat and the ISOE MB to coordinate practical arrangements for periodic collection and exchange of data on occupational radiation exposures at nuclear facilities (December 2011)**

- To facilitate systematic and regular provision by ISOE to UNSCEAR of data and information on occupational radiation exposures at nuclear facilities (ISOE objective for data collection is consistent with the UNSCEAR objectives);*
- *Average collective dose over the period (total, average/reactor, average/energy generated),*
  - *Average number of reactors over the period,*
  - *Average energy generated over the period,*
  - *Totals for each reactor type, based on reported data.*

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### **Technical Cooperation Agreement between the ISOE MB and the Nuclear Energy Institute (USA) (November 2014)**

*To facilitate the exchange among ISOE and NEI of information and experience on the optimization of occupational radiation protection in the operation and decommissioning of nuclear power plants according to the agreed terms and conditions (expert /working group activities or organization of international/ regional events).*

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### **Technical Cooperation Agreement between the ISOE MB and ENRESA (Spain) (May 2015)**

*To facilitate the exchange among ISOE and ENRESA of information and experience on the optimization of occupational radiation protection in the operation and decommissioning of nuclear power plants according to the agreed terms and conditions (expert /working group activities or organization of international/ regional events).*

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