

OECD/NEA project:

# Cost of nuclear accidents - liabilities issues and their impact on electricity costs

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OECD/NEA Workshop on Nuclear Damages, Liability Issues and Compensation Schemes

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## Objectives and background

The Fukushima accident has renewed a debate on the consequences of severe nuclear accidents and the associated costs.

*What are the “true” costs of a nuclear accident? and Are existing insurance mechanisms and compensations schemes sufficient?* are some of the questions raised in the policy debate.

### Main objectives of the study

- Conduct an **appraisal of existing studies** and data on radiological consequences and economic costs of severe nuclear accidents that have occurred in civil nuclear energy.
- **Review existing studies and methodologies for estimating damages** associated to severe nuclear accidents, their application, uncertainties and limitations.
- **Develop methodology on assessments of costs** associated to severe nuclear accidents, including definition of cost elements, their characterisation and relative order of importance.
- **Develop case studies on the basis of the defined methodology and perform reviews**, e.g. to assess the impact of approaches and limits adopted by regulatory authorities and governments on accident consequences/costs.
- **Describe existing liability regimes in OECD countries and consider implications**

## A transverse OECD/NEA project

undertaken by NDD with the assistance of other divisions of NEA:

- ***Radiological Protection and Radioactive Waste Management Division***

- Support in organising the first workshop on cost assessment methodologies.
- Review of the chapter on cost of accidents occurred in nuclear industry.
- Contribution in identifying the case-studies for the final report.

- ***Nuclear Safety Division***

- Support in organising the first workshop on cost assessment methodologies.
- Contribution in identifying the case-studies for the final report.

- ***Division of Legal Affairs***

- Support in organising the **second workshop on nuclear liability**.
- Contribution in drafting the chapter on nuclear liability regimes.
- Collaboration with experts from the insurance industry.

## Work plan

The project is overseen and directed by an **Ad Hoc expert group** with representatives nominated by OECD/NEA members countries.

- Three meetings of the expert group are scheduled in the biennium 2013-2014.
- Publication of the final report is expected by the end of 2014 – beginning of 2015.

### Two workshops on:

- Workshop I (28-29 May 2013) : ***Approaches to estimation of the costs of nuclear accident***
  - Appraisal of existing studies on the costs of TMI, Chernobyl and Fukushima accidents
  - Perspectives and methodologies for assessing nuclear accident costs
  - Involvement of international experts from governments, research and industry
- Workshop II (10-11 Dec 2013): ***Nuclear accident risk, liability issues and compensations schemes***
  - Review of liability regimes currently applicable in OECD and non-OECD countries.
  - State participation: legal basis, amount and nature, financial impact on operator.
  - Mechanisms implemented if the accident liability exceeds the caps legally provided.
  - Discussion of possible mechanism that could internalise the cost of nuclear accidents.
  - Representatives of legal community and insurance industry.

# General structure of the report

## **1. Introduction**

## **2. Severe accidents in the history of civil nuclear power**

- Factual description of the accidents (TMI, Chernobyl and Fukushima).
- Costs (material damages and health effects).
- Available data on broader economic consequences.

## **3. Approaches to estimation of potential damages of nuclear accidents**

- Different estimation perspectives.
- Appraisal of existing studies.
- Definition of the methodology proposed in the current study.

## **4. Generic case studies**

- Definition of representative case studies/scenarios and limitations of this approach.
- Estimations of absolute costs.
- Estimation of external cost associated with nuclear power production (cost\*probability).

## **5. Question of funding nuclear liability**

- Describe the existing liability regimes in OECD countries and their coverage.
- Mechanisms implemented in case liability amounts are beyond the liability caps legally provided.
- Other potential mechanisms that could internalise nuclear accident cost: practical implications.

## **6. Conclusions and recommendations**

## Workshop I and 1<sup>st</sup> meeting of the Expert Group

**Workshop I** “*Approaches to estimation of the costs of nuclear accidents*” took place on 28-29 May 2013

- Participants from both OECD/NEA member and non-member countries, and representing nuclear regulatory bodies, and economic, radioprotection and industry communities
  - ✓ Session I: Appraisal of existing studies on the cost of TMI, Chernobyl and Fukushima
  - ✓ Session II: Methodologies of estimation of costs of nuclear accidents
- Presentations available at: <http://www.oecd-nea.org/ndd/workshops/aecna/>

**1<sup>st</sup> meeting of the Ad Hoc Expert group** took place on 30 May 2013

- Nominations from Belgium, Finland, France, Hungary, the Republic of Korea, the Russian Federation, the US and the UK (*further nominations since then*)
- Nominations from international organisations: EC and IAEA
- The group discussed the outcomes of the Workshop and started working on the initial set of cost categories and the associated methodologies
- Summary record on OLIS: [NEA/NDC\(2013\)17](#)

## Workshop II

# “Nuclear Damages, Liability Issues and Compensation Schemes”

### Session I **Presentations on the international nuclear liability regimes**

*IAEA and Paris conventions, Brussels Supplementary Convention, EU nuclear liability issues*

### Session II: **Presentations on selected regimes, past accidents**

*Price Anderson Act, Canadian nuclear liability legislation, Accidents in non-nuclear industries*

### Session III: **Insurance and alternative forms of financial securities**

*Insurance, mutual insurance, operators' pooling arrangements, role of the Government*

### Session II: **Presentations on selected regimes, past accidents (cont.)**

*The Japanese nuclear liability regime and the TEPCO Fukushima Daiichi accident*

### Session IV: **The industry perspective on nuclear liability**

*EDF, Rosatom, U.S. operator's perspectives*

### Session V: **Nuclear liability regimes & assessment of the costs of nuclear accidents**

## The following generic questions would like to be addressed during the Workshop II:

**Session I:** How do you see the existing nuclear liability regimes evolving in the future?

**Session II:** Under current nuclear liability regimes, the operator is in principle exclusively liable for the nuclear accident, and the perimeter of liability is defined. Given the possible extent of damages caused by a nuclear accident, would you consider that other options may be implemented to indemnify such damages ?

**Session III:** Which elements are taken into consideration by insurers when assessing the risk of a nuclear accident?

What is the insurance capacity limit (from the insurance industry perspective) and how is it calculated?

**Session IV:** Global mutualisation schemes between operators are sometimes advocated as capable of providing guarantees sufficient to compensate damages due to accidents similar to the TEPCO Fukushima Daiichi or Chernobyl accidents.

In your opinion, are such schemes possible and if so, what conditions should be met in order to implement them?



# Thank you for your attention

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## Summary of the further work

**DECEMBER 2013**

2<sup>nd</sup> meeting on the expert group:

Definition of generic case studies and preliminary discussions

Final definition of the methodology

Second workshop (10-11 December)

“Nuclear damages, liability issues and compensation schemes”

**JUNE 2014** (TENTATIVE)

3<sup>rd</sup> meeting of the expert group:

Validation of the case studies and cost estimates performed

**SEPTEMBER 2014**

Final draft report sent to the expert group

**OCTOBER 2014**

Reviewed final draft sent to the NDC and WPNE, and to CRPPH, CNRA and NLC *pour avis*.

**2014-2015**

Final report published