CSNI Workshop on
"Recent Findings and Developments in PSHA Methodologies and Applications"

Lyon Congress Centre
Lyon - France
7-9 April 2008

Hosted by Electricité de France (EdF)

In cooperation with IAEA

Final Programme
**Sunday, 6 April 2008**

16.00-19.00 Pre-registration

**Monday, 7 April 2008**

08:30 Registration

09:00 Opening Session
   *Chairs:* Emmanuel Viallet (EDF)  
   Alejandro Huerta (OECD/NEA)

09:00 Welcome Address  
   E. Viallet, EDF

09:15 Introduction & objectives of the workshop  
   A. Huerta, OECD/NEA

09:40 Invited Lecture – Relation of the Fact on the Plant Suffered from an Extremely Strong Local Earthquake to Seismic PSA Analysis Resusts  
   Prof. Heki Shibata, University of Tokyo, Japan

10:10 Coffee break

10:40 Session 1 - Recent advances in regulations and guidelines  
   *Chairs:* Prof. Julian Bommer (Imperial College London)  
   Pierre Labbé (EDF)

10:40 Recent PSHA Activities at the USNRC, Including Continuing Research  
   A. J. Murphy, A. M. Kammerer and J. Ake, NRC, USA

11:05 Confidence Levels in Determining Seismic Hazard Estimation and Confrontation with Probabilistic Estimates  
   D. Baumont, O. Scotti, M.E. Cushing, and C. Berge-Thierry, IRSN, France

11:30 Swiss Regulatory Review of the PEGASOS Study  
   P. Zwicky, R.T. Sewell, and D. Giardini, Consultants to the Swiss Nuclear Safety Inspectorate (HSK), Switzerland

12:00 Lunch break

13:00 Seismic Issues in Siting New Nuclear Power Plants in the Central and Eastern United States  
   Y. Li and N. Chokshi, NRC, USA
       A. Gürpinar, IAEA

13:50  Session 1 Panel Discussion

14:20  Invited Lecture - Empirical Ground-Motion Models for PSHA at Sites of Critical Facilities
       J.J. Bommer, Professor of Earthquake Risk Assessment, Director of Undergraduate Studies Civil & Environmental Engineering, Imperial College London, UK

14:50  **Session 2 - Current PSHA practices and challenges**

14:50  PSHA in Korea with Low – to – Moderate Seismicity; 20 Years Experience and a New Challenge
       J.M. Seo (KAERI) and K.H. Yun (KEPRI), Korea

15:15  The Finnish Approach to Seismic Hazard Analysis – Case Loviisa
       P. Varpuso (Fortum Nuclear Service), J. Sandberg (STUK) and P. Välkangas (STUK), Finland

15:40  Current Hungarian Practice of Seismic Hazard Assessment: Methodology and Examples
       L. Tóth (GeoRisk Earthquake Research Institute), E. Győri (Seismological Observatory), T.J. Katona (Paks NPP), Hungary

16:05  Coffee break

16:25  Accounting for Epistemic Uncertainties in Site Effect Studies: Examples of a Logic Tree Approach
       P.-Y. Bard (University Joseph Fouier), D. Fäh (Swiss Seismological Service), A. Pecker (Géodynamique et Structure), J. Studer (Studer Engineering), N. Abrahamson (Geoscience Department, PG&E)

16:50  Use of the Hybrid Empirical Method for Developing Attenuation Relationship in Regions of Low Seismicity
       K. Campbell, (USA)

17:15  Session 2 Panel Discussion

17:45  **End of day 1**
**Tuesday, 8 April 2008**

8:30 Invited Lecture - PEGASOS Advanced Ground Motion Models  
N. Abrahamson, Geoscience Department, PG&E, USA

09:00 Session 3 - Checks of consistency of PSHA results vs. available observations  
*Chairs:* Aybars Gürpinar (IAEA)  
Andrew J. Murphy (USNRC)

9:00 PSHA Results Versus Historical Seismicity; Examples of France  
P. Labbé, EDF-SEPTEN, France

9:25 An Approval Procedure for the Acceptance of PSHA Results Based on the Implementation of the “Principle of Empirical Control”  
J.-U. Klügel, NPP Goesgen-Daeniken, Switzerland

9:50 A Method for Comparison of Recent PSHA on the French Territory with Experimental Feedback  
N. Humbert, E. Viallet, C. Drououchoux, EDF, France

10:15 *Coffee break*

10:45 Consistency of PSHA Models in Acceleration and Intensity by Confrontation of Predictive Models to Available Observations in France  
C. Martin (Geoter International), R. Secanell (Geoter International), E. Viallet (EDF), N. Humbert (EDF), France

11:10 Report on the Kashiwasaki – Kariwa NPP after the 16 July Earthquake – An IAEA Perspective  
A. Godoy, IAEA

11:35 Constraining Probabilistic Seismic Hazard Estimates with Strong motion Data: Possibilities and Limitations  
C. Beauval (Géosciences Azur-IRD), P.-Y. Bard (University Joseph Fouier), S. Hainzl (Institute of Geosciences, Germany)

12:00 Verification of the National Seismic Hazard Maps for Japan with Actual Observed Strong Motion by K-NET in the Last Decade  
Y. Fukushima, Japan

12:25 Session 3 Panel Discussion

13:00 *Lunch break*
14:00  **Session 4 - Advanced and alternative PSHA methods**  
*Chairs:* Robert Budnitz (LBNL)

14:00  Invited Lecture - A Bayesian Updating Framework for Prediction of Site-Specific Seismic Ground Motion  
*T. Takada (University of Tokyo, Japan) and M. Wang (University of Waterloo, Canada)*

14:30  Invited Lecture – Probabilistic Hazard and Bayesian Methodology  
*G. Woo, UK*

15:00  Uncertainties in PSHA for regions of Low - to - Moderate Seismic Potential:  
The Need for a Structured Approach  
*J.P. Ake, NRC, USA*

15:25  An Evaluation of Epistemic and Random Uncertainties Included in Attenuation  
Relationship parameters  
*N. Humbert, E. Viallet, EDF/SEPTEN, France*

15:50  Coffee break

16:10  Damage – Relevant PSHA  
*R. T. Sewell, R.T. Sewell Associates, Consultant to HSK*

16:35  On the Use of a Bayesian Updating Technique to get probabilistic Seismic  
hazard Assessment More Rugged  
*E. Viallet, N. Humbert, EDF/SEPTEN, France*

17:00  Session 4 Panel Discussion

**18:15 – 22.30**  
*Workshop special event : Tour and dinner in Beaujolais*
Wednesday, 9 April 2008

08:30 Invited Lecture - Methodologies for Capturing the Scientific Basis for Seismic Source Characteristics in PSHA: An Example from the PEGASOS Project
K.J. Coppersmith (Coppersmith Consulting, Inc.) and R.R. Youngs (Geomatrix Consultants, Inc.)

09:00 Session 5 - Comparisons between PSHAs conducted in different areas
Chairs: Nilesh Chokshi (USNRC) Gordon Woo (UK)

09:00 Lessons Learned from the Application of PSHA Approach and Methodologies – IAEA EBP Conclusions
A. Gürpinar (IAEA)

09:25 Comparison of PEGASOS Results with Other Modern PSHA Studies
M. Richner and S. Tinic, Nordostschweizerische Kraftwerke, NPP Beznau, Switzerland

09:50 Some Lessons Learned and Recent Advances in PSHA Modelling for Eastern US Stable Continental Region
C. Stepp (USA)

10:15 Coffee break

10:40 Session 5 Panel Discussion

11:10 Final Session - Conclusions, lessons learnt and recommendations from the workshop
Chairs: Emmanuel Viallet (EDF) Andrew J. Murphy (USNRC)

11:10 Synthesis of topic 1 conclusions
(To be named later)

11:40 Synthesis of topic 2 conclusions
(To be named later)

12:10 Lunch break

13:10 Synthesis of topic 3 conclusions
(To be named later)

13.40 Synthesis of topic 4 conclusions
(To be named later)

14.10 Synthesis of topic 5 conclusions
(To be named later)

14:40 General discussion

15:10 Coffee break

15:30 Conclusions, lessons learnt, and recommendations - Synthesis of the 5 synthesis presentations

16:15 Closing remarks
A. Huerta (OECD/NEA), E. Viallet (EDF)

16:30 End of workshop