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NC State University
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Symposium Program

SUNDAY, DECEMBER 11
5:00-7:00 PM Welcome Reception and Registration
Location: Third Floor

MONDAY, DECEMBER 12
7:00 AM Registration and Continental Breakfast
Location: Third Floor / Charlotte E

8:00 AM Sessions I–Keynote Speaker
Chairman/Moderator: Finis H. Southworth
Chief Technology Officer Emeritus, AREVA Inc., Lynchburg, Virginia

Sensible Energy Policy in the United States: Making the Case for Nuclear Energy
Donald R. Hoffman
President & Chief Executive Officer, Excel Services Corporation, Rockville, Maryland
Past President, American Nuclear Society (ANS) | Chair, Virginia Nuclear Energy Consortium Authority | President & CEO, Sensible Energy Matters to America (SEMA)

8:50 AM Break

9:05 AM Session II–High Wind Hazard and Probabilistic Risk Assessments (PRAs)
Chairmen/Moderators:
Melvin L. Arey, Jr., Manager, Corporate Design Support, Duke Energy Corporation, Charlotte, North Carolina
Eugene A. Hughes, Director, ETRANCO Inc., San Francisco, California

Risk Assessment for High Winds: State of the Art

EPRI High Wind Research
Hasan Charkas, Senior Technical Leader, Risk & Safety Management, Electric Power Research Institute, Charlotte, North Carolina; and Leo Shanley, Manager, Risk-Informed Engineering, JENSEN HUGHES, West Chester, Pennsylvania

Simplified High Wind Evaluations
Kyle D. Hope, Senior Engineer, and Raymond E. Schneider, Fellow Engineer, Risk Applications & Methods, Westinghouse Electric Company, LLC, Windsor, Connecticut

15 minute Break/Floating

Industry’s High Wind Operating Experience
Leo Shanley, Manager, Risk-Informed Engineering, JENSEN HUGHES, West Chester, Pennsylvania; and Hasan Charkas, Senior Technical Leader, Risk & Safety Management, Electric Power Research Institute, Charlotte, North Carolina

11:50 AM Lunch
Location: Charlotte E

Welcome and Introduction
Distinguished Speaker
David A. Doctor
President & Chief Executive Officer, E4 Carolinas, Charlotte, North Carolina

NextEra’s Tornado Missile Protection Resolution Strategy
Atanya Lewis, Principal Engineer, Nuclear Fleet Licensing, NextEra Energy, Jupiter, Florida

Lessons Learned from High Wind PRAs for Duke Energy Fleet
Michael S. Kitlan Jr., Manager, and Artur N. Mironenko, Senior Engineer, Probabilistic Risk Analysis, Nuclear Engineering, Duke Energy Corporation, Charlotte, North Carolina

The Future of the U.S. Nuclear Power Industry
John W. (Bill) Pitesa
Senior Vice President & Chief Nuclear Officer, Duke Energy Corporation, Charlotte, North Carolina

1:50 PM Session III–Seismic Hazard
Chairmen/Moderators:
Nilesh C. Chokshi, Consultant, NCChokshi Consulting, Silver Spring, Maryland
Yoshimitsu Fukushima, External Events Safety Section, International Atomic Energy Agency, Vienna, Austria

Next-Generation Attenuation Models for Central & Eastern United States (NGA-East)
Robert R. Youngs, Principal Engineer, Environment & Infrastructure, AMEC Foster Wheeler, Oakland, California
(Contributors: Christine Goulet, Yousef Bozorgnia, and Norman Abrahamson, Pacific Earthquake Engineering Research Center (PEER), University of California; Berkeley, California; Linda Al Atik, Linda Al Atik Consulting, San Francisco, California; Gail Atkinson, Western University, Ontario, Canada; Robert Graves, U.S. Geological Survey, Pasadena, California; and Nicholas Kuehn, Pacific Earthquake Engineering Research Center (PEER), University of California, Berkeley, California)

Full or Partial Non-Ergodic Ground Motion Models
Norman A. Abrahamson, Pacific Earthquake Engineering Research Center (PEER), University of California, Berkeley, California

Site Amplification and Foundation Input Response Spectra (FIRS) Evaluation for a Partially Non-Ergodic Ground-Motion Model
Norman A. Abrahamson, Chief Engineering Seismologist, Pacific Gas & Electric Company, San Francisco, California

Principles and Examples of PSHA Testing
Pierre B. Labbé, Seismic Risk Expert, New Nuclear Projects & Engineering Division (DIPNN DTI), Electricité de France, Saint-Denis, France
Symposium Program Continues...

Sensitivity of Seismic Hazard Curve Fractiles to Simplified Input Assumptions
Jeffrey K. Kimball, Principal Seismologist, Wei Li, Senior Engineer, Jose E. Blanco, Technical Director-Seismic, and Richard C. Quittmeyer, Vice President & Chief Seismologist, Rizzo Associates, Pittsburgh, Pennsylvania

3:45 PM  Break

4:10 PM  Session IV–Risk-Based Plant Operation
Chairmen/Moderators:
Gregory A. Krueger, Director, Corporate Engineering PRA, Exelon Nuclear, Kennett Square, Pennsylvania
Andrew N. Mauer, Senior Project Manager, Emergency Preparedness, Nuclear Energy Institute, Washington, DC

Considerations in Aggregating Risk Results in Risk-Informed Applications
Douglas E. True, Executive Vice President, JENSEN HUGHES, Walnut Creek, California

How We Factor Risk Insights from External Hazards into Everyday Plant Decisions
Eugene M. Kelly, Senior Manager, Risk Informed Applications, Exelon Generation, Kennett Square, Pennsylvania

Crediting FLEX in Risk-Informed Applications
Donald E. Vanover, Vice President, Risk Informed Programs, JENSEN HUGHES, West Chester, Pennsylvania

Considerations and Experience on Risk Aggregation
Carlos M. Lorenzoz, Director, Nuclear Safety Division, Ontario Power Generation, Pickering, Ontario

5:40 PM  Adjourn

TUESDAY, DECEMBER 13

Location: Third Floor / Charlotte E

8:00 AM  Session V–Keynote Speaker
Chairman/Moderator:
Bryan A. Erler
President, Erler Engineering Ltd., Chicago, Illinois

Nuclear Energy: A Key Component to a Clean Energy Strategy
John E. Kelly
Chief Technology Officer, Office of Nuclear Energy, U.S. Department of Energy, Washington, DC

8:50 AM  Break

9:05 AM  Session VI–Seismic Fragility
Chairmen/Moderators:
Richard Z. Chen, Senior Seismic Engineer, Candu Energy Inc., SNC-Lavalin, Mississauga, Ontario, Canada
Victor V. Kostarev, President, CKTI-Vibroseism, Saint Petersburg, Russia

High Frequency Ground Motion Amplification: A Myth or Reality?
Abhinav Gupta, Director, and Sugandha Singh, Graduate Research Assistant, Center for Nuclear Energy Facilities & Structures (CNFES), North Carolina State University, Raleigh, North Carolina

The OECD-NEA Programme on Metallic Component Margins under High Seismic Loads (MECOS)
Pierre B. Labbé, Seismic Risk Expert, New Nuclear Projects & Engineering Division (DIPPN DTI), Electricité de France, Saint-Denis, France; G. R. Reddy, Head, Structural & Seismic Engineering Section, Reactor Safety Division, Bhabha Atomic Research Centre (BARC), Trombay, Mumbai, India; Cedric Mathon, Senior Engineer, Basic Design Department, Thermal & Nuclear Research Projects Service (SEPTEN), Electricité de France, Villeurbanne, France; François Moreau, Project Manager, Géodynamique et Structure, Bagneux, France; and Spyros A. Karamanos, Associate Professor, Department of Mechanical Engineering, University of Thessaly, Volos, Greece

High Frequency Ductility
Gregory S. Hardy, Senior Principal, Simpson, Gumpertz & Heger, Inc., Newport Beach, California; and Robert P. Kassawara, Manager, Structural Reliability & Integrity, Electric Power Research Institute, Palo Alto, California

15 minutes  Break/Floating

EPRI Seismic Fragility Research
John Richards, Senior Project Manager, Electric Power Research Institute, Charlotte, North Carolina; and Gregory S. Hardy, Senior Principal, Simpson, Gumpertz & Heger, Inc., Newport Beach, California

Seismic Fragility: Screening and Calculation Approaches
Divakar Bhargava, Principal Engineer, and Daniel J. Vasquez, Consulting Engineer, Nuclear Engineering, Dominion Resources Services, Inc., Glen Allen, Virginia

EPRI Seismic Fragility Methodology Guide
Gregory S. Hardy, Senior Principal, Simpson, Gumpertz & Heger, Inc., Newport Beach, California; and Robert P. Kassawara, Manager, Structural Reliability & Integrity, Electric Power Research Institute, Palo Alto, California

11:50 AM  Lunch

Location: Charlotte E

Distinguished Speaker
Marvin S. Fertel
President & Chief Executive Officer
Nuclear Energy Institute
Washington, DC

1:50 PM  Session VII–Seismic Risk Assessment Methods
Chairmen/Moderators:
Ziduan (Joshua) Shang, Chief Technology Expert, Shanghai Nuclear Engineering Research & Design Institute (SNERDI)/State Power Investment Corporation (SPIC), Shanghai, China
James Yimin Zhu, Senior Project Engineer, Westinghouse Electric Company, LLC, Charlotte, North Carolina
Analytical, Experimental and Experience-Based Assessments of Structural Vulnerability for Beyond-Design-Basis Events

Abhinav Gupta, Director, Center for Nuclear Energy Facilities & Structures (CNFES), North Carolina State University, Raleigh, North Carolina; and Peter I. Yanev, Founder, EQE Consulting, Orinda, California

Advancing Seismic PRA to Include Nonlinear SSI

Chandrananth Bolisetti, Seismic Researcher, and Justin L. Coleman, Group Lead, Seismic Research Group, Idaho National Laboratory, Idaho Falls, Idaho

Nonlinear Computational Simulations for the Earthquake Response of Nuclear Systems

Jenna Wong and Floriana Petrone, Postdoctoral Fellows, and David B. McCallen, Research Affiliate, Lawrence Berkeley National Laboratory/Associate Vice President, Office of the President, and Frank McKenna, Research Scientist, University of California, Berkeley, California

Experience-Based Seismic Design, Evaluation and Fragilities of SSCs Using Recent Strong-Motion Performance Data

Peter I. Yanev, Founder, EQE Consulting, Orinda, California

Session VIII–Uncertainty in Soil-Structure Interaction (SSI) Analysis/ Panel

Chairmen/Moderators:


Justin L. Coleman, Group Lead, Seismic Research Group, Idaho National Laboratory, Idaho Falls, Idaho

Application of Nonlinear SSI into SPRA Calculations

Justin L. Coleman, Group Lead, Seismic Research Group, Idaho National Laboratory, Idaho Falls, Idaho

Consistent Modeling for SSI Analysis Using High Performance Computing

Muneo Hori, Professor, Earthquake Research Institute (ERI), The University of Tokyo, Tokyo/ Unit Leader, RIKEN Advanced Institute of Computational Science (AICS), Kobe, Hyogo, Japan; Muhammad Rizwan Riaz, Graduate Student, ERI; Hiroki Motoyama, Research Assistant, AICS; and Akiba Hiroshi, Research Associate, and Yusuke Ohtsuka, Visiting Researcher, ERI

New ASCE 4-Based Probabilistic Nonlinear SSI Analysis for Improving Seismic Fragility

Dan M. Ghicocel, President, CEO & Chief of Engineering, GP Technologies Inc., Pittsford, NewYork

SASSI Verification and Validation (V&V) Project

Brent J. Gutierrez, Manager, Natural Phenomena Hazards Engineering, Savannah River Site Office, U.S. Department of Energy, Aiken, South Carolina; and Stephen M. McDuffie, Seismic Engineer, Office of the Chief of Nuclear Safety, U.S. Department of Energy, Richland, Washington

Effects of Seismic Wave Incoherence on SSI

Carl J. Costantino, Founder & President, Carl J. Costantino & Associates, Spring Valley, NewYork

5:40 PM Adjourn
Symposium Program Continues…

**First Energy Fleet**

K. Raymond Fine, Nuclear Fleet Supervisor, Analytical Methods, First Energy Nuclear Operating Company, Akron, Ohio

11:50 AM Lunch

**Location: Charlotte E**

**Distinguished Speaker**

**Empowering the Next Generation of Power Electronics**

Major General Nickolas Grey Justice

Executive Director, PowerAmerica

Next Generation Power Electronics National Manufacturing Innovation Institute

North Carolina State University, Raleigh, North Carolina

1:50 PM

**Session XI A–Flood Hazard Assessment**

Chairman/Moderator:

Dhiren C. Pandya, Manager, Nuclear Engineering/Major Projects, Mechanical & Civil Design, Shearon Harris Nuclear Plant, Duke Energy Corporation, New Hill, North Carolina

Informing TVA’s Flood Hazard Estimation through Paleo Flood Investigations

Keil Jason Neff, Hydrologist, River Operations, Tennessee Valley Authority (TVA), Knoxville, Tennessee; John E. Weglian, Senior Technical Leader, Risk & Safety Management, Electric Power Research Institute, Charlotte, North Carolina; and Karen T. Carboni, Hydrology Program Manager, Nuclear Power Group, TVA, Chattanooga, and Hannah Rene Kubas, Hydrology Intern, River Operation, TVA, Knoxville, Tennessee

Accounting for Uncertainty in Probabilistic Flood Evaluations to Reduce Cost

Ahmed “Jemie” Dababneh, Senior Director, Hydraulics & Hydrogeology, and Mark A. Schwartz, Engineering Supervisor, Rizzo Associates, Pittsburgh, Pennsylvania

2:40 PM Break

2:55 PM

**Session XI B–Seismic Correlations and Dependencies**

Chairman/Moderator:


Correlations and Dependencies of Similar SSCs under Earthquake Loads

Robert J. Budnitz, Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California, Berkeley, California; Gregory S. Hardy, Senior Principal, Simpson, Gumpertz & Heger, Newport Beach, California; David L. Moore, David L. Moore Consulting, Mercer Island, Washington; and M. K. ‘Ravi’ Ravindra, President, MKRavindra Consulting, Irvine, California

3:55 PM Break

4:00 PM

**Session XII–Multi-Hazards/External Hazards Updates**

Chairmen/Moderators:

Jeremy Aartun, Chief Structural Engineer, Fluor Nuclear Power, Greenville, South Carolina

Ram Srinivasan, Technical Consultant, San Jose, California

**EPRI Guidance on Seismically-Induced Fires and Floods**

Paul J. Amico, Senior Risk Consultant & Project Manager, International Strategic Programs, Power Services Group, JENSEN HUGHES, Rockville, Maryland; Pierre E. Macheret, Senior Engineer, Risk Analysis, JENSEN HUGHES, Las Vegas, Nevada; and Robert P. Kassawara, Manager, Structural Reliability & Integrity, Electric Power Research Institute, Palo Alto, California

**Process for Managing New Data**

Jeffrey K. Kimball, Chief Seismologist, Rizzo Associates, Pittsburgh, Pennsylvania

**Reevaluation Guidelines for DOE Facilities**

Annie M. Kammerer, Consultant, Annie Kammerer Consulting, Portsmouth, New Hampshire; Kevin Coppersmith, Consultant, Coppersmith Consulting, Walnut Creek, California; Nilesh C. Chokshi, Consultant, NCChokshi Consulting, Silver Spring, Maryland; Robert J. Budnitz, Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California, Berkeley, California; and Justin L. Coleman, Group Lead, Seismic Research Group, and Suzette J. Payne, Seismologist, Applied Engineering, Idaho National Laboratory, Idaho Falls, Idaho

External Hazards Updates: Canadian Perspective

George Stoyanov, S. Yalaoui and C. Cole, Staff; and Andrei Blahoianu, Former Director, Engineering Design Assessment Division, Canadian Nuclear Safety Commission, Ottawa, Ontario, Canada

5:40 PM Adjourn
### Professional Development Hours (PDH)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Unit</th>
<th>PDH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at Symposium</td>
<td>Day</td>
<td>8</td>
</tr>
<tr>
<td>Session Chairmen/Moderators, Panelists and Presenters (Instructors)</td>
<td>Quarter Day</td>
<td>4</td>
</tr>
</tbody>
</table>

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