



EPRI Strategic Activities on PRA Infrastructure

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EPRI Risk Technology Strategic Areas

1 PRA Tools, Data, and Methods

2 *Support for Risk-informed Regulations*

3 Risk Management and Culture

4 *Risk-informing New Plants*

5 *Educating Nuclear Professionals in Risk Methods*

6 *Societal Risk-Benefit Issues Including Security*



Area 1: *PRA Tools, Data, and Methods*

Probabilistic risk assessment (PRA) tools can yield inconsistent results and are not uniform with respect to all initiators and plant operating states.

- **Resolving PRA Scope & Quality Technical Issues**
 - Developing specific issue guidance
 - Supporting PRA documentation and configuration control
- **Support of PRA Standards**
 - development and implementation
- **Advanced PRA Modeling and Quantification Methods**
 - Declarative Modeling and BDD
 - PRA Documentation and Navigation
- **Fire and Seismic PRA Methods**
 - Fire PRA Requantification (with NRC)
 - Seismic PRA and Seismic Margins applications



Area 3: *Risk Management and Risk Culture*

A risk management process and culture must exist at nuclear plants and at NRC that is strong enough to support widespread risk-informed/ performance-based regulation and operations.

- **Risk Management (RM) Process Model and Assessment**
 - RM Model defined in terms of existing processes at well-run plants
 - Validated from plant audits and dynamic systems simulations
 - Assessment process tested and ready for use
- **Configuration Risk Management (CRM) Forum**
 - Annual workshop of CRM issues and innovations
 - Support to CRM stakeholders throughout the year
 - Technical R&D activities to enhance fidelity, consistency, scope, and efficiency of CRM



2004 / 2005 PRA Scope and Quality Guides

- **2004 PRA Scope and Quality Guides**
 - Treatment of Uncertainty
 - Treatment of Quantification, Truncation Limits, and Convergence
 - Aggregation of Quantitative Risk Analyses (continuing)
- **Potential New 2005 PRA Scope and Quality Guides**
 - Compendium of consensus models
 - Use of Importance Measures
 - Level 2 Modeling (emphasis on LERF and LLRF)
 - Incorporation of aging in models and data
 - Common Cause Failure treatment
 - Others from prioritized list



PRA Infrastructure: A Vision

- 1. PRA Standards and technical guidelines**
 - ensure consistency and appropriate level of capability
- 2. Decision process for full scope of risk**
 - initiators, modes, figures-of-merit)
- 3. A new generation of PRA/RM tools**
 - Declarative modeling; precise solutions
 - Dynamic link to configurations, data, success criteria, ...
 - Efficient documentation and configuration control
- 4. Risk management culture and process**
 - PRA is just one element
- 5. Next generation of plants**
 - risk-informed licensing, design and operation.

