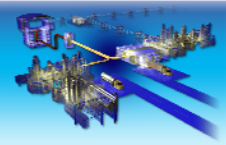



Regulatory Information Conference 2010

Identification of Priority Licensing Issues for NGNP

Jim Kinsey, Director
Next Generation Nuclear Plant Project
Regulatory Affairs
 March 10, 2010



www.inl.gov





What is NGNP?

The **Next Generation Nuclear Plant (NGNP) Project** is focused on the deployment of High Temperature Gas Cooled Reactors

- Supports a transformative application of nuclear energy to address the President's goals for reducing greenhouse gas emissions and enhancing energy security
 - Process heat applications (petrochemical, oil sands, etc.)
 - Generation of electricity
 - Generation of hydrogen











NGNP Licensing Path to Plant Deployment

Overall strategy established in DOE-NRC Report to Congress (August, 2008)

- Recommended the Part 52 Combined License (COL) process be utilized
 - Lowers licensing risk - builds on recent industry experience
 - Provides additional project certainty for stakeholders
- Identified an initial set of priority licensing issues and challenges requiring resolution in order to license and operate NGNP
 - Describes process for adaptation of existing LWR rules
 - Identifies likely need for new regulation in certain areas
- Established NRC infrastructure & licensing resource needs
- Focused on steps to support NGNP plant deployment
 - Licensing pre-application program with NRC
 - NGNP license application and NRC review/approval
 - Construction and plant startup (with NRC oversight)





NGNP Project Implementation

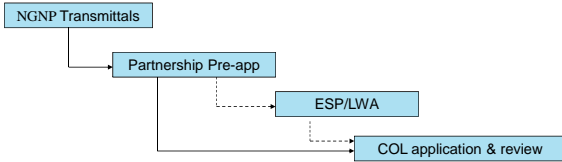
- Implement the licensing and plant deployment path described in the DOE – NRC Licensing Strategy - Report to Congress
 - Define and prioritize key licensing issues at a more detailed level
 - Establish specific plan for adapting existing LWR regulatory requirements to HTGRs
- Establish a licensing issue resolution process with the NRC to reduce risks associated with issue resolution
 - Licensing white paper process
- Maintain regular issue resolution interactions with the NRC



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Overall Sequence

NGNP Pre-application Period Application Submittal & NRC Review



- Notes:
- a) "Partnership" refers to the future NGNP Project public-private partnership
 - b) The potential benefits of an ESP application will be evaluated by the future partnership; an ESP is not included in current DOE project plans



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NGNP Evaluation of Key Precedents and History

- NRC precedence and guidance
 - SECY Documents
 - MHTGR precedents (NRC Draft SER – NUREG 1338 – 1989), PSID
- NGNP Program Activities
 - PIRT Report (NUREG/CR 6944)
 - NGNP Pre-Conceptual Design Report
 - Licensing Specification (2008 – SRP assessment)
- Exelon licensing activities (2001)
- PBMR US design certification program (2005)



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Highest Priority Items

- Licensing activities were prioritized to address issues that:
 - Could potentially have significant impact on the plant design and/or long duration research & development activities
 - Will potentially require Commission action, based on the potential results from NRC Staff review of planned high priority NGNP licensing white papers
 - May represent a potentially significant license application content issue that may impact the application's acceptability or NRC review schedule



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NGNP Licensing Plan

- Prioritization results are summarized in the NGNP Licensing Plan (2009)
 - Describes priority licensing topics (key policy and technical issues)
 - Describes implementation/resolution plan
- Establishes a plan for documenting COL application content for HTGR's
 - Utilizes Reg. Guide 1.206 concept (COLA Content Guide for LWR's)
- The Licensing Plan is publicly available on the NGNP Project website
 - www.nextgenerationnuclearplant.com
 - "Articles/Publications" – "Documents Archive" – "INL 2009"



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Examples of Priority NGNP Licensing Topics

- Key policy and technical issues identified for early discussion and resolution
 - Establishment and implementation of a risk informed performance based licensing approach
 - Licensing Basis Event Selection
 - Classification of Structures, Systems, & Components
 - Defense in Depth
 - Fission Product Transport Characteristics
 - Fuel qualification program
 - Accident analysis source term definition
 - Emergency planning requirements for industrial facility siting
 - Control room configuration & staffing for a multi-module facility



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Licensing Issue Status and Path Forward

- NRC resources are currently engaged with project document reviews
 - First NGNP licensing white paper (Defense in Depth) submitted in Dec. 2009
 - NRC public meeting covering this submittal held in March, 2010
- Additional licensing white papers are nearing completion, with NRC submittal planned for 2010
 - Fuel Qualification
 - Mechanistic Source Term
 - Licensing Basis Event Selection
 - Classification of Structures, Systems, & Components
 - High Temperature Materials
- Continue to support HTGR workshops and industry advanced reactor forums to facilitate common understanding and resolution of technical and licensing issues