

Commission Briefing on NEW REACTORS

April 6, 2005

ACRONYMS

ACR advanced CANDU reactor

AECL Atomic Energy of Canada Limited

AP advanced passive COL combined license

DAC design acceptance criteria

DC design certification

EPR Framatome's trademark name for their

1600 MW PWR

ESBWR economic and simplified boiling water reactor

ESP early site permit

FTE full time equivalent

FY fiscal year

GE General Electric Company

GEN generation

ACRONYMS (cont.)

IRIS international reactor innovative and secure

ITAAC inspections, tests, analyses, and acceptance

criteria

LWR light water reactor

M million

MW megawatt

NEI Nuclear Energy Institute

PBMR pebble bed modular reactor

PRA probabilistic risk assessment

PWR pressurized water reactor

RES Office of Nuclear Regulatory Research

RS review standard

SER safety evaluation report

<u>W</u> Westinghouse Electric Corporation

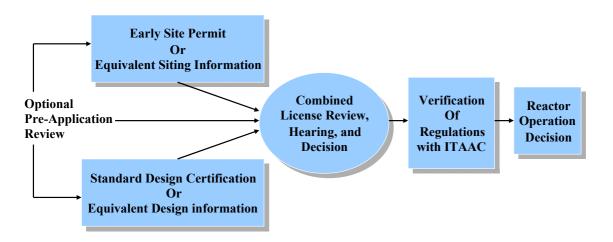
Agenda

Accomplishments and Status

Challenges

Strategies

Part 52 Licensing Process



Design Certification Program Status

- Standard Review Plan available
- 42-60 month review schedule (60-120 FTE/\$10-25 M)
- Three certified designs
- W AP1000 scheduled rulemaking (12/05)
- GE ESBWR submittal in FY 2005
- 5 designs in pre-application review

Early Site Permit (ESP) Status

- ESP guidance document (RS-002) issued
- 3 ESP reviews in progress
 - North Anna, Clinton, and Grand Gulf
- Southern Company application in FY 2006
- 36 month review/hearing schedule (16 FTE/\$2 M each)

Combined License (COL) Preparations

- Review of NEI COL Application Guidance (NEI-04-01) in progress
- Review of COL Operational Programs
- Construction Inspection Program
- 10 CFR Part 52 revision
- COL referencing an ESP and Design Certification – Nominal 27 month review schedule (60 FTE/\$3.5 M)
- Hearing preparations

RES ROLE IN NEW LWR LICENSING

- Supports pre-application, and design certification application, and COL application (as necessary) reviews of LWRs (e.g., AP-1000, ESBWR, EPR)
- Tools, data, and expertise currently in place to support review of designs similar to current LWR designs

RES ROLE IN NEW NON-LWR PLANT LICENSING

- Leads potential pre-application reviews of new non-LWRs, if requested (e.g., PBMR)
- Leads the development of NRC's longer range, technical needs for reviewing and licensing new plant designs, technologies and licensing framework

RES SUPPORT FOR FUTURE DESIGN REVIEWS

- Designs significantly different from current advanced LWRs will require greater technical development
 - -ACR-700 pre-application
 - -PBMR pre-application
 - -Toshiba 4S pre-application (Potential)
 - –GEN IV pre-application, COL (Potential)

RES GENERIC TECHNICAL DEVELOPMENT

- New Reactor Licensing Framework
- PRA
- Human Performance
- Seismic and structural issues
- Digital Instrumentation and Control
- Cooperative activities

NRC Challenges

- Significant preparation required for application review
- Large number of potential applications
- Schedule for application submittals is uncertain
- Resources to support operating reactor safety and security is highest priority

New Reactor Licensing Schedule

FY 2006	FY 2007	FY 2008_
Finish 3 ESPs Start Southern ESP —		•
Continue ESBWR DC		Start EPR DC
	Start Dominion COL	Start Duke COL Start NuStart 1 COL Start NuStart 2 COL
Pre-application Review	/s	

Strategies for New Reactor Licensing Challenges

- Expand NRC staff capabilities
- Expand NRC contractor utilization
- Disciplined Licensing Approach

Expand NRC Staff Capabilities

- Agency wide effort to achieve maximum credible growth and knowledge transfer
 - Recruiting
 - Training
 - Facilities
 - Information Technology
 - Organization

Expand NRC Contractor Utilization

- Agency wide effort
- Explore growth with existing qualified contractors and labs

Solicit new contractors for qualification

Disciplined Licensing Approach

 Develop expectations for quality and content of applications

Work with applicants to firm up schedules

 Priority given consistent with National Energy Goals

Conclusions

NRC processes are ready

NRC resources are limited

Industry demand is uncertain

NRC staff has a strategy