

NRC Update: New Reactor Licensing

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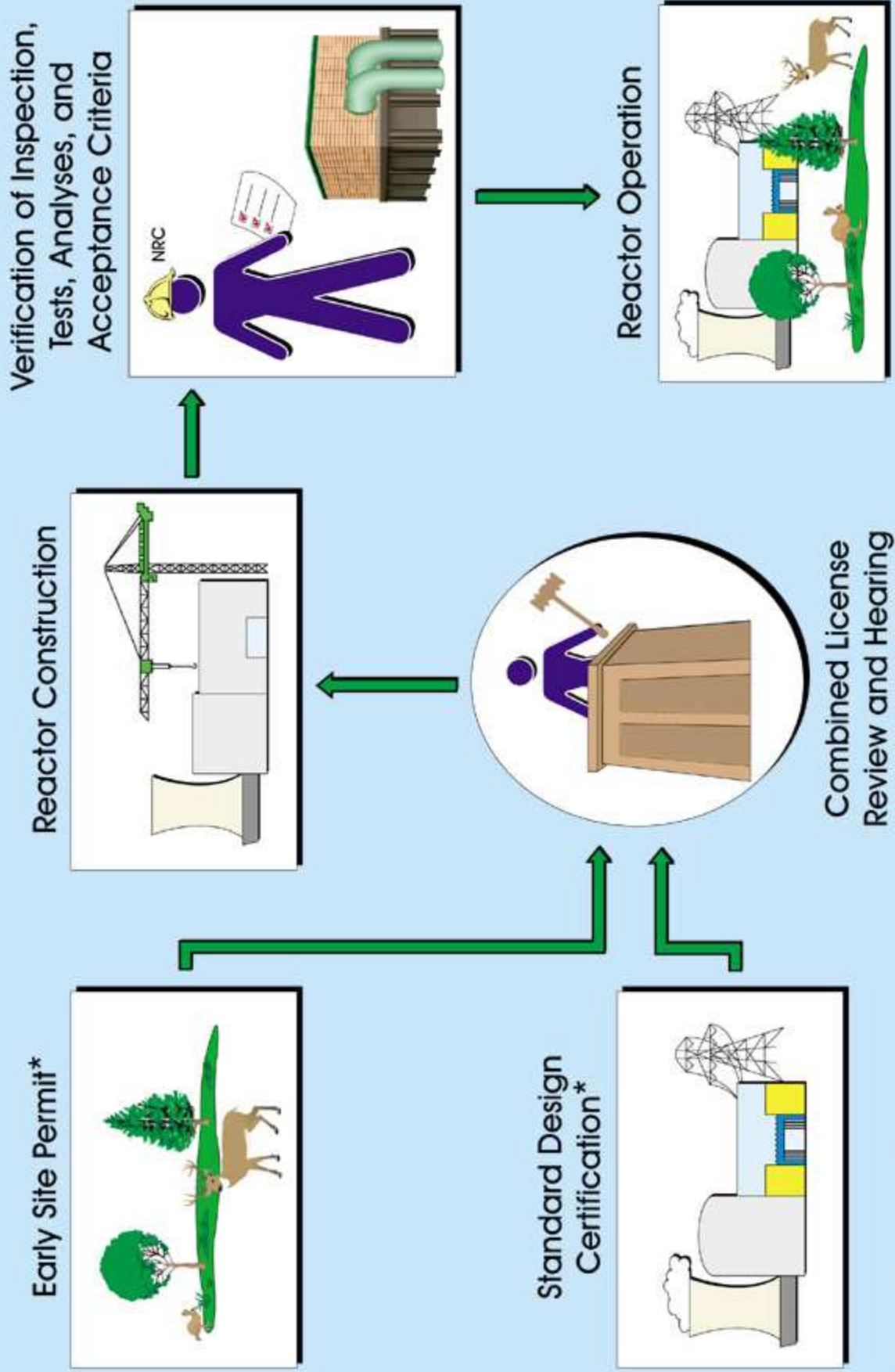
Presentation Topics

- **Industry Plans for New Reactor Licensing**
 - Design Certifications (DCs)
 - Early Site Permits (ESPs)
 - Combined Licenses (COLs)

- **NRC Plans for New Reactor Licensing**
 - Update Regulations
 - Update Regulatory Guidance
 - Design-Centered Review Approach
 - Increase Staffing



Combined Licenses, Early Site Permits, and Standard Design Certifications



* or equivalent process

Design Certifications

- **Approved**
 - ABWR (GE Advanced Boiling Water Reactor)
 - System 80+ (Combustion Engineering)
 - AP600 (Westinghouse)
 - AP1000 (Westinghouse)
- **Currently under Review**
 - ESBWR (GE Economic Simplified Boiling Water Reactor)
- **To Be Submitted**
 - EPR (AREVA Pressurized Water Reactor)
 - Two unannounced Technologies



Early Site Permits

- **Currently under Review**

- Grand Gulf (Entergy – Mississippi) (Review Complete **01/07**)
- Clinton (Exelon – Illinois) (Review Complete **05/07**)
- North Anna (Dominion – Virginia) (Review Complete **12/07**)
- Vogtle (Southern Co – Georgia) (Received **8/06**)

- **To Be Submitted**

- One in 2007
- Two TBD

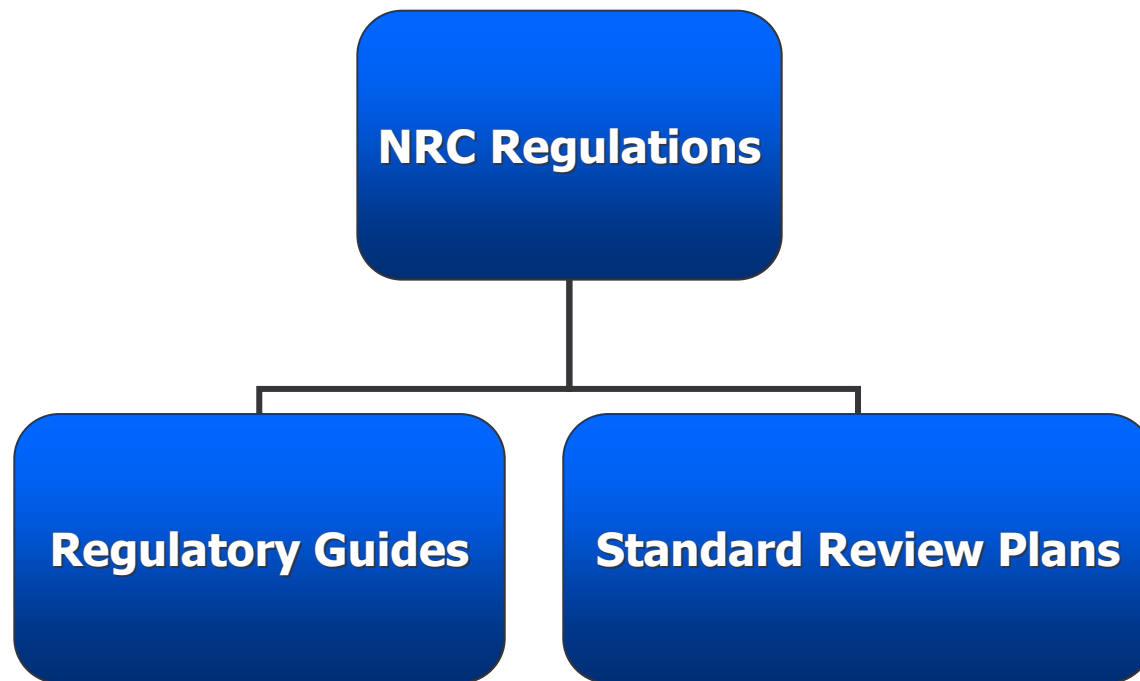


Combined Licenses

- **2007**
 - About **11 applications** expected
 - for approximately 22 units
- **2008**
 - About **8 applications** expected
- **2009**
 - **1 application** expected



NRC Regulatory Process



NRC Federal Guidance

- **10 CFR Part 20:** Standards for protection against radiation
- **10 CFR Part 50:** Domestic licensing of production and utilization facilities
- **10 CFR Part 51:** Environmental protection regulations for domestic licensing and related regulatory functions
- **10 CFR Part 52:** Early site permits; standard design certifications; and combined licenses for nuclear power plants ([Proposed rule change 71 FR 12782, 03/13/06](#))
- **10 CFR Part 100:** Reactor site criteria



NRC Regulatory Guides

- New Reactor Application Contents
 - ***Regulatory Guide 1.70***: Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants
 - ***Draft Guide (DG) 1145***: Combined License Applications for Nuclear Power Plants (LWR Edition) (Draft for Public Comment)



NRC Standard Review Plans

- ***NUREG-0800***: Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants

Being updated (March 2007) to address:

- 10 CFR Part 50 (CP and OL) applications
- 10 CFR Part 52 (ESP, DC, and COL) applications



DG-1145 & NUREG-0800 Format

- Section 2.3 Meteorology
 - **2.3.1** Regional Climatology
 - **2.3.2** Local Meteorology
 - **2.3.3** Onsite Meteorological Measurements Program
 - **2.3.4** Short-Term Atmospheric Dispersion Estimates for Accident Releases
 - **2.3.5** Long-Term Atmospheric Dispersion Estimates for Routine Releases



Meteorology Regulatory Guides

- 2.3.1 Regional Climatology
 - **RG 1.27**: Ultimate Heat Sink for Nuclear Power Plants
 - **RG 1.76**: Design Basis Tornado for Nuclear Power Plants
 - **DG-1143**: Design-Basis Tornado and Tornado Missiles for Nuclear Power Plants



Meteorology Regulatory Guides

- 2.3.2 Local Meteorology
 - **RG 1.23**: Onsite Meteorological Programs
 - **DG-1164**: Meteorological Monitoring Programs for Nuclear Power Plants



Meteorology Regulatory Guides

- 2.3.3 Onsite Meteorological Monitoring Program
 - **RG 1.23:** Onsite Meteorological Programs
 - **DG-1164:** Meteorological Monitoring Programs for Nuclear Power Plants



Meteorology Regulatory Guides

- 2.3.4 Short-Term Atmospheric Dispersion Estimates for Accident Releases
 - **RG 1.78:** Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release
 - **RG 1.145:** Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants
 - **RG 1.194:** Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants

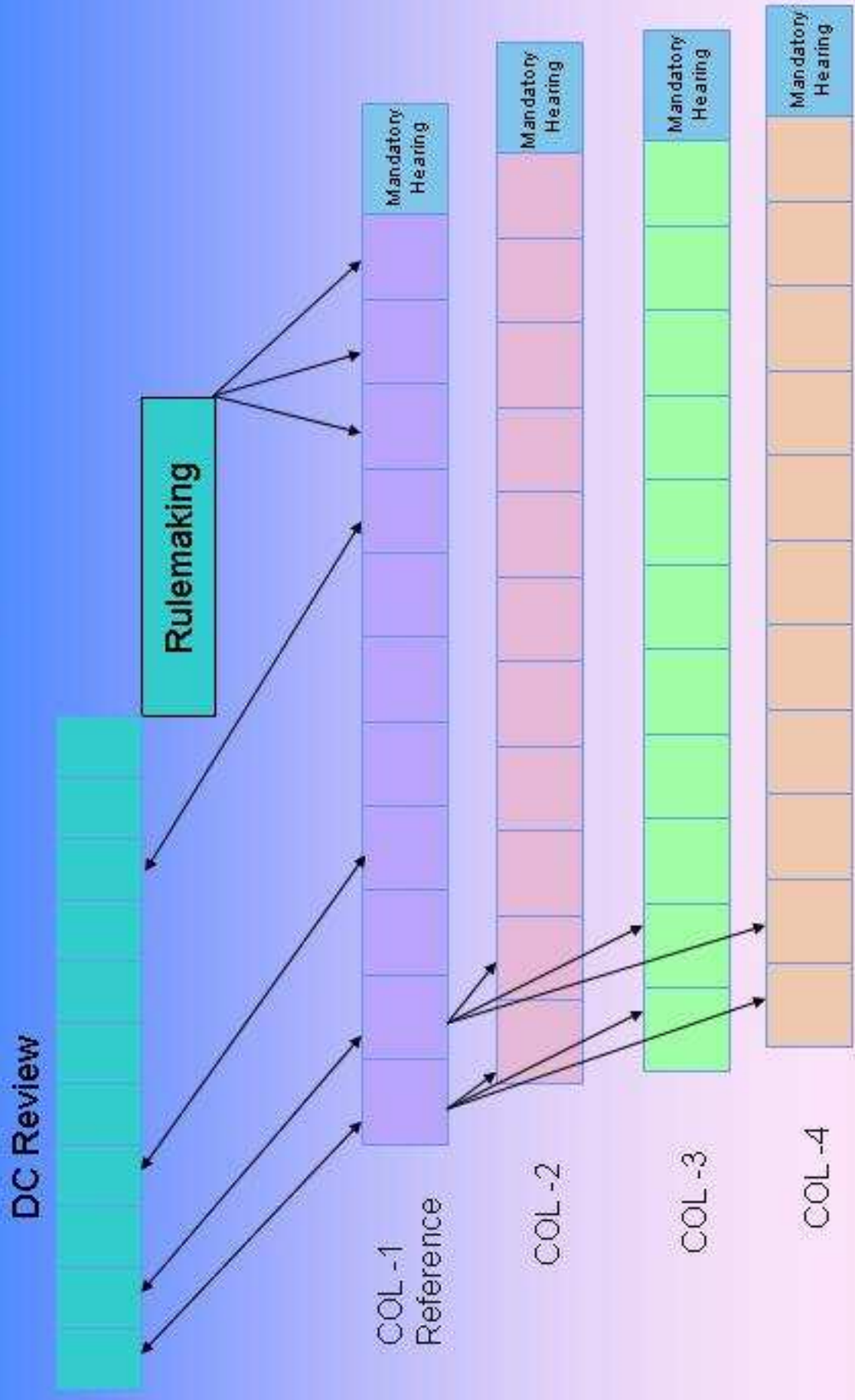


Meteorology Regulatory Guides

- 2.3.5 Long-Term Atmospheric Dispersion Estimates for Routine Releases
 - **RG 1.111**: Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors

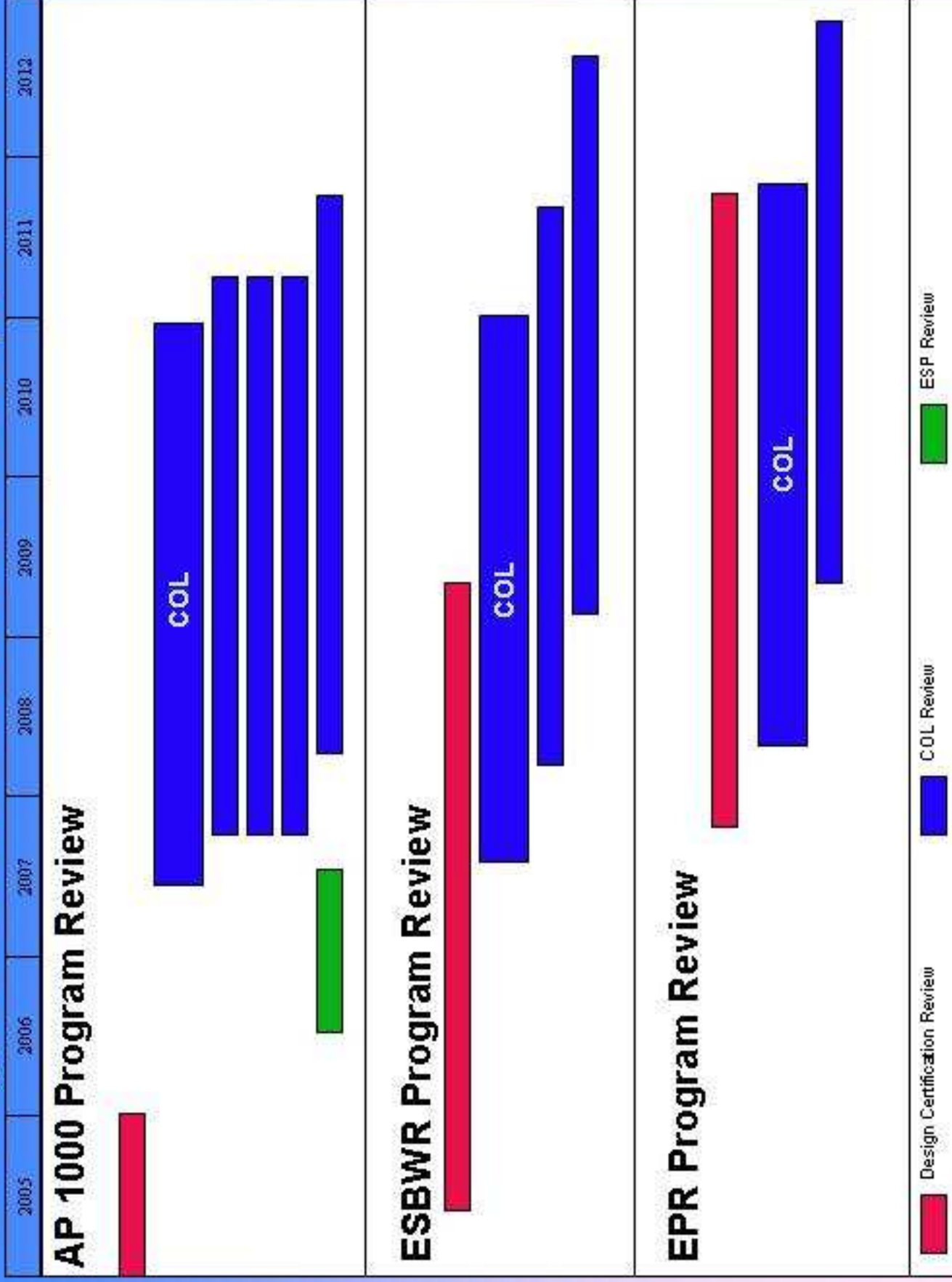


One Decision – Multiple Applications



Similar approach used on site reviews (environmental and safety)

Design-Centered Review Approach



NRC Staffing Plans

- Hire approximately **350 new staff members** over a two-year period to review expected new plant (ESP, DC, and COL) applications
- **Form Office of New Reactors (NRO)**
 - Split technical staff among NRR and NRO
- NRC meteorological staff for safety analysis review increasing from 2 to approximately 5



Conclusion

- Nuclear Industry is expanding with approximately **20 new** ESP, DC, and COL applications expected within the next 2-3 years
- **NRC is preparing for new applications by:**
 - Re-organizing and adding new staff
 - Revising and updating regulations and regulatory guidance (Regulatory Guides and NUREG-0800)
 - *DG-1145*: Form and Content of COL Applications
 - *NUREG-0800*: Section 2.3
 - *DG-1164*: Onsite Meteorological Programs

