



Subsequent License Renewal Draft Generic Aging Lessons Learned Report and Standard Review Plan

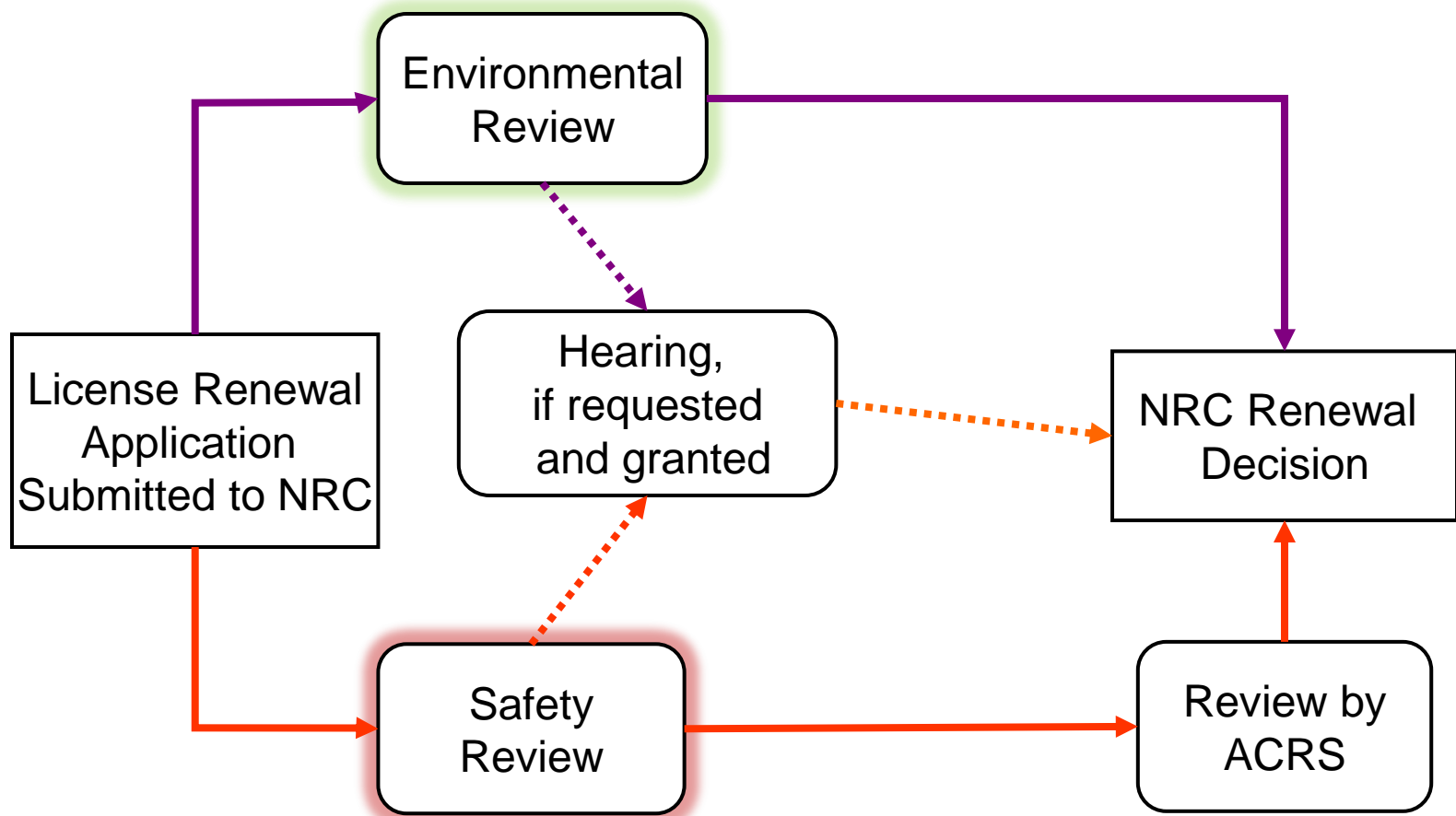
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Agenda

- License Renewal Background
 - Process
 - Principles
 - Status
- Subsequent License Renewal (SLR)
 - Background
 - Technical Issues
 - Guidance
 - Timeline

License Renewal Application Review Process



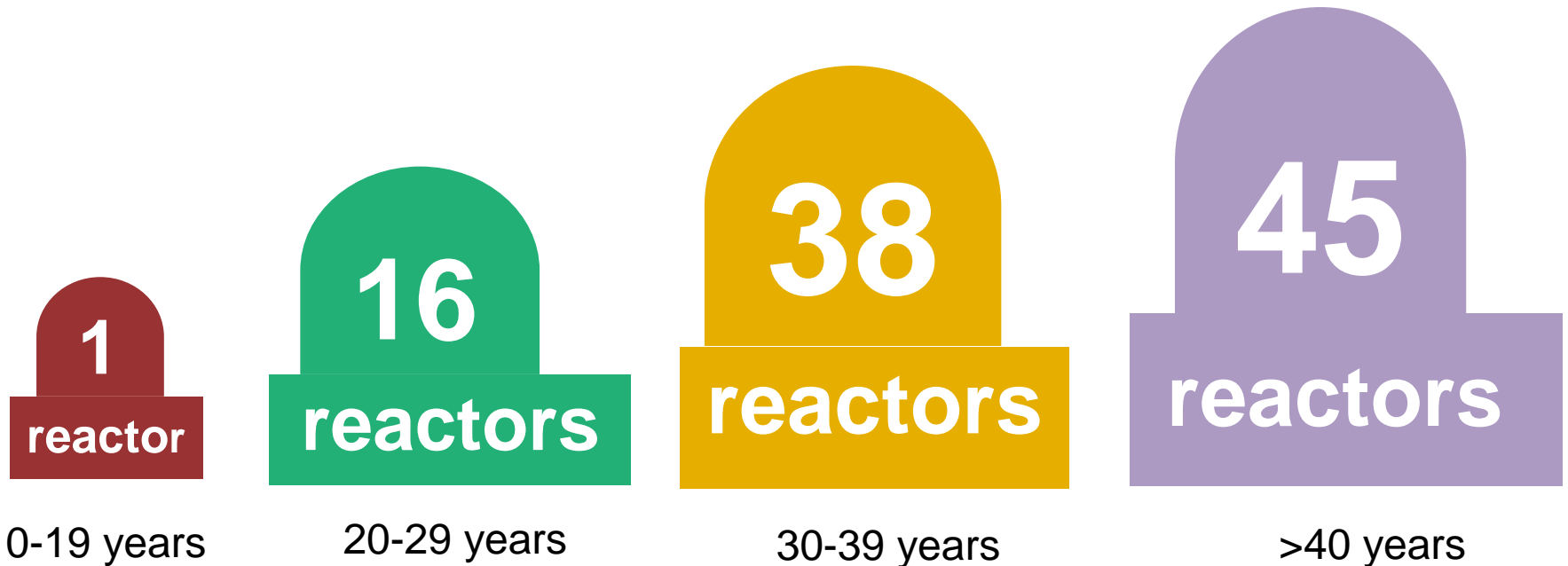
License Renewal Principles

- Regulatory process ensures that the current licensing basis provides and maintains an acceptable level of safety
- Each plant's current licensing basis must be maintained during the renewal term in the same manner, and to the same extent, as during the original licensing term

License Renewal Status

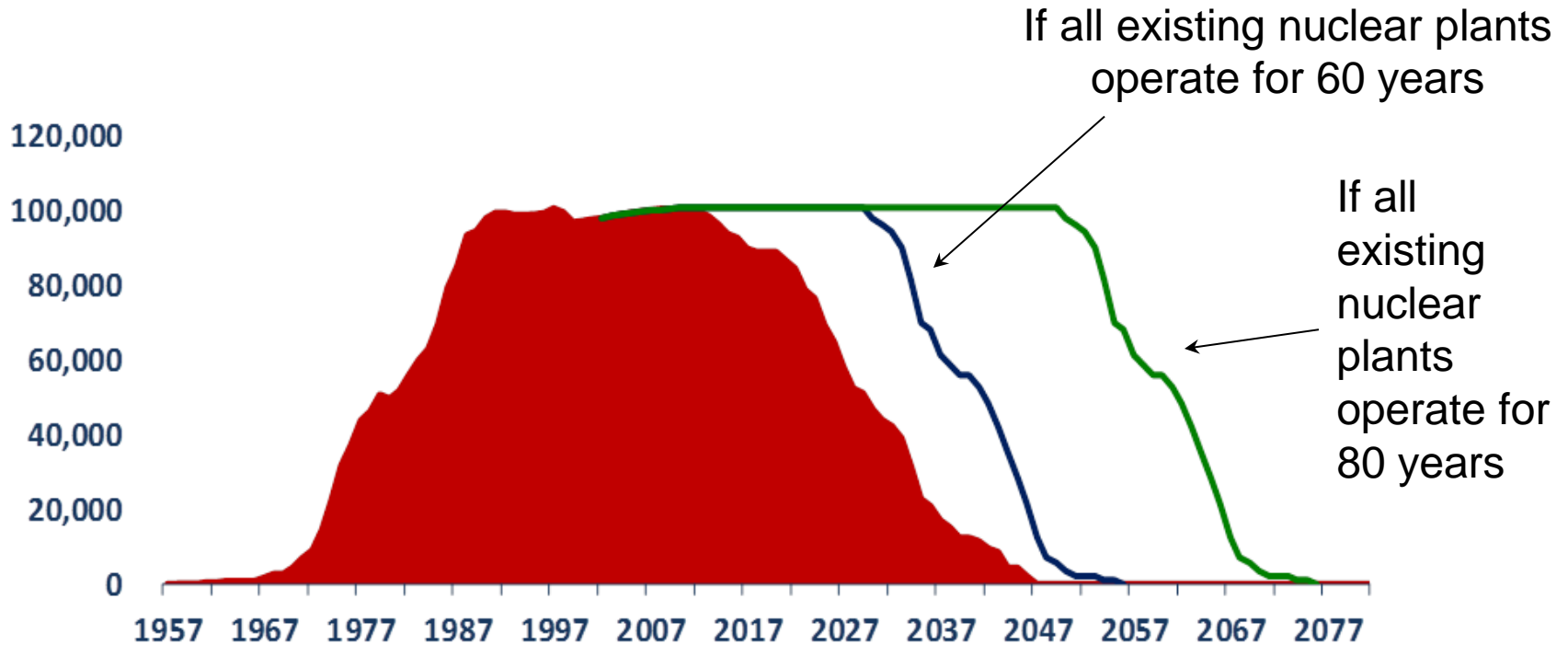
- Older plants will reach the end of 60 years in 2029
- 83 units have renewed licenses
- 12 units currently under review
- 5 upcoming units between 2017 and 2022
- 2 units in 2019 for SLR

U.S. Commercial Nuclear Power Reactors: Years of Operation by the End of 2016



Projected U.S. Nuclear Power Capacity

Megawatts



Sources: *Energy Information Administration, Nuclear Regulatory Commission*

Subsequent License Renewal

- Principles of license renewal would continue to be effective to ensure safety
- The Commission reaffirmed that the current regulatory processes are sufficient
- The current regulatory processes allows for
 - Guidance updates to address emerging issues
 - Enhancements to the oversight process to focus additional attention on AMP implementation
 - Imposing new requirements, such as license conditions, to ensure safe plant operation
- Optimization of application review process

Technical Issues for Operation Beyond 60 years

- Reactor pressure vessel neutron embrittlement at high fluence
- Irradiation-assisted stress corrosion cracking of reactor internals and primary system components
- Concrete and containment degradation
- Electrical cable qualification, condition monitoring and assessment

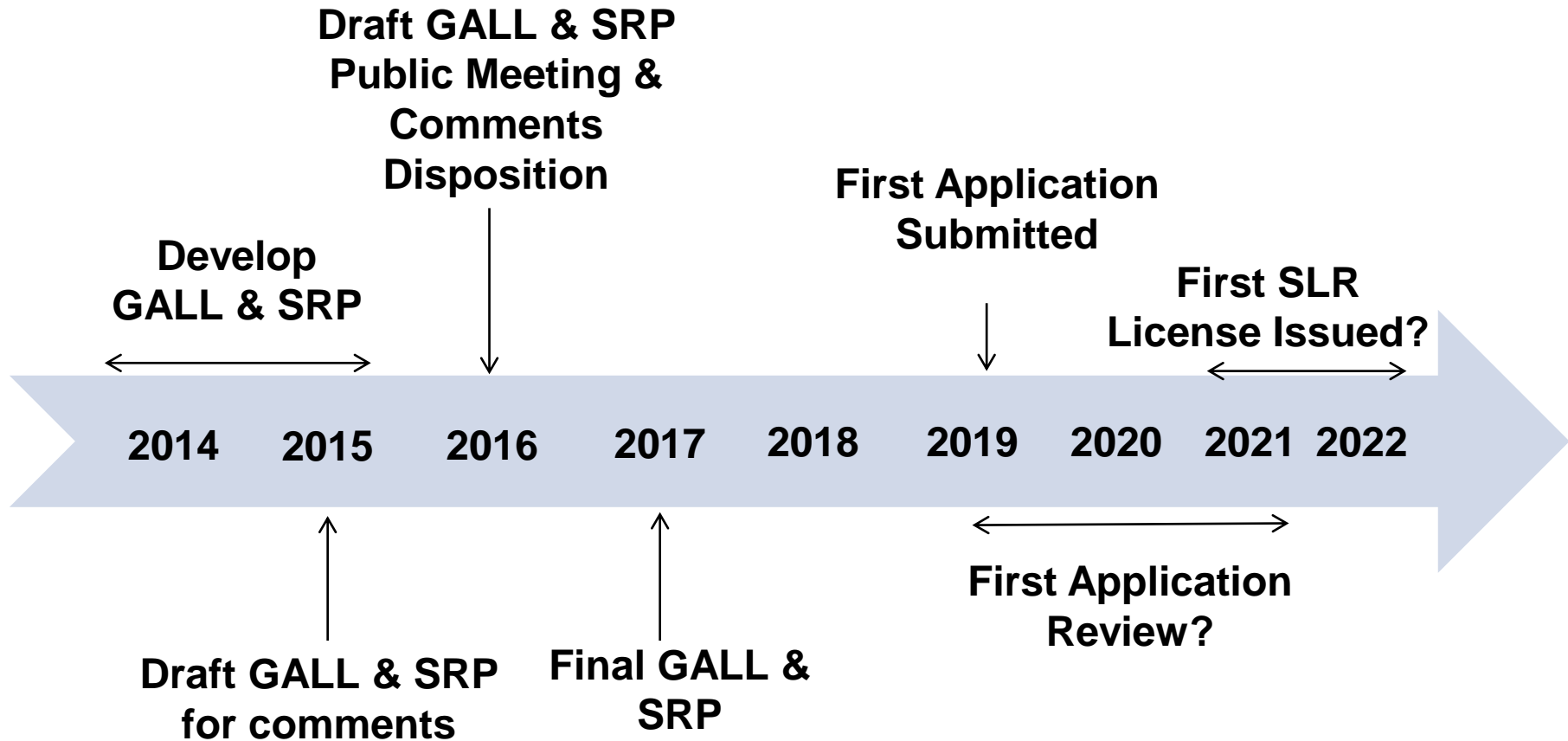
SLR Guidance

- **Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report (NUREG-2191)**
 - Provides generic evaluation of existing aging management programs
 - Acceptable methods to manage aging effects
 - Plant-specific alternatives may be proposed
- **Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants (SRP-SLR) (NUREG-2192)**
 - Provides guidance to NRC staff reviewers to perform safety reviews of SLR applications

SLR Guidance Basis

- Expected aging differences for operations beyond 60 years
- New domestic and foreign operating experience
- Aging management program audits and inspections occurring during the license renewal application review process and the period of extended operation
- Implementation of GALL Report and SRP, Rev. 2
- Issuance of interim staff guidance

SLR Timeline



Summary

- The current regulatory framework is adequate for SLR
- SLR guidance documents for will be issued in 2017 to facilitate NRC readiness to review of SLR applications in a consistent and timely manner
- At least one utility has stated its intention to submit a SLR application in 2019
- Industry is conducting significant research to ensure the technical issues are being addressed