

NRC Subsequent License Renewal Process



Testimony Before the Joint Legislative Commission on
Energy Policy

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Overview of Session

- Speaker Introduction
- Nuclear Regulatory Commission Role
- Status of U.S. Reactor Program
- License Renewal Process and Current Status
- Subsequent License Renewal Process and Prospects
- Dialog

Honorable Jeffrey S. Merrifield



- Energy Section Leader - Pillsbury Law Firm (2015-18)
- Commissioner - Appointed by Presidents Clinton and Bush to serve on the five-member U.S. Nuclear Regulatory Commission (1998-2007)
- Senior V.P. - Shaw Power Group/CBI – nuclear engineering, construction, maintenance and decommissioning (2007-2014)
- Counsel/Staff Director – U.S. Senate Environment Committee (1994-1998) – Oversight Committee of NRC
- Public Policy Chair – E4 of the Carolinas
- Chairman Advanced Reactor Task Force – Nuclear Infrastructure Council
- ***But... the views I express today are my own.***

Practice Areas/Industries

- Energy
- Nuclear Energy
- Strategic Planning
- Advanced Reactors
- Decommissioning
- Nuclear Security
- Mergers and Acquisitions
- Employee Concerns

About Pillsbury



- International 700+ attorney firm
 - Offices in strategic financial and government centers – New York, Washington, London, Beijing, Tokyo, Shanghai, Hong Kong
- The oldest and largest, international nuclear group in the world – over 20 dedicated nuclear lawyers including:
 - Nuclear, chemical, mechanical, and electrical engineers
 - Former nuclear navy
 - Former nuclear industry
 - Former nuclear regulators
 - Partners with 30+ years of nuclear experience
 - Specialists in all aspects of the nuclear industry
- Plus 40+ lawyers in our other practices who are nuclear trained

Nuclear Power – Today



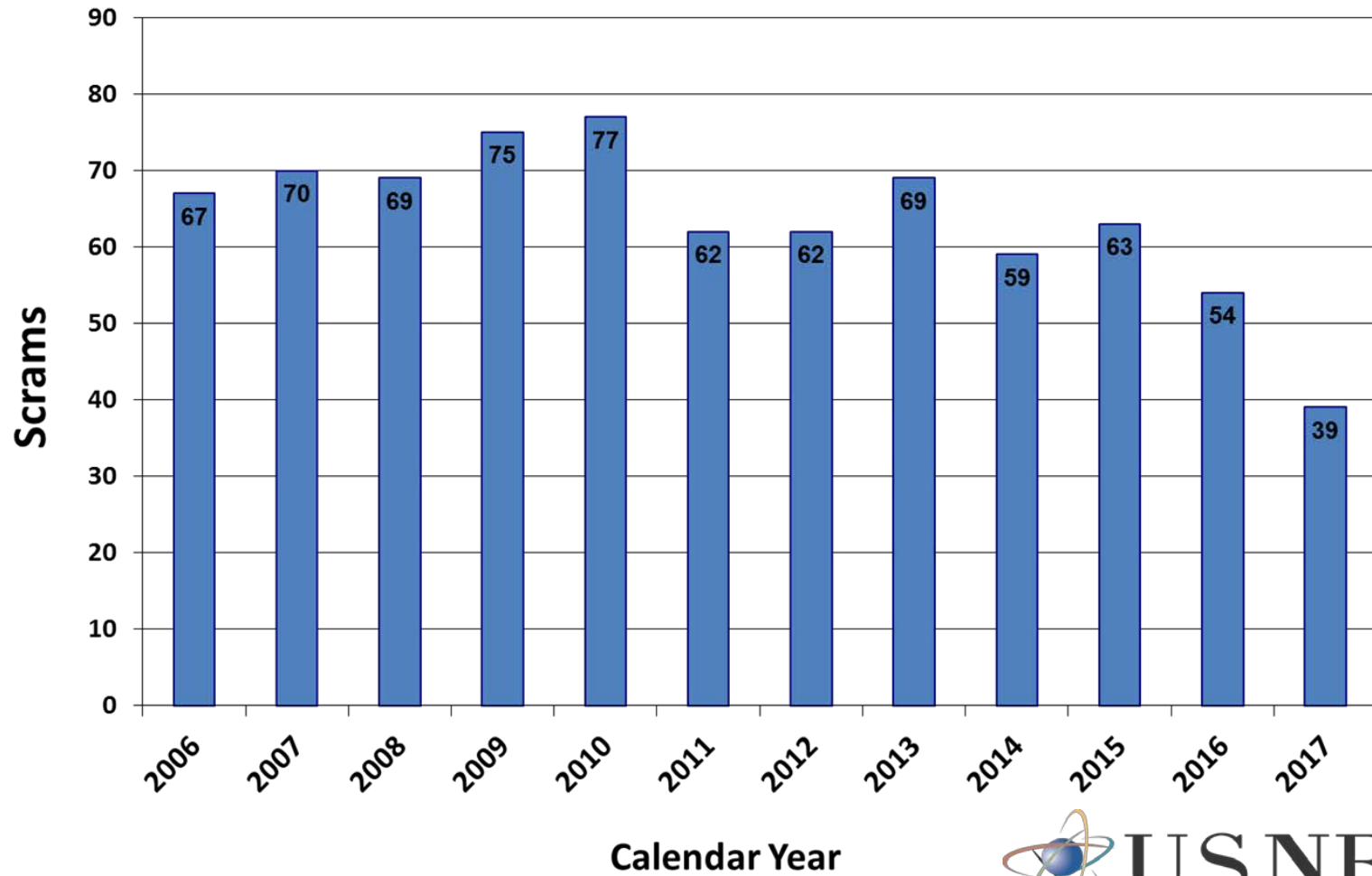
- There are currently 440 nuclear reactors worldwide in 32 countries
 - 363 GWE – total net installed nuclear capacity
 - 11% of world's total energy/ 35% of world carbon free generation
 - 16 countries rely on nuclear power for at least $\frac{1}{4}$ of total generation
- United States is the largest operator with 99 nuclear units (2 under construction)
- 65 reactors are in construction in 13 countries
- United Arab Emirates recently completed the first of four reactors

U.S. Energy Highlights - Nuclear

- Nuclear power continues to provide almost 20% of US electricity generation
- Several nuclear units in the northeast, Ohio and California have been announced to be closed over next 5 years
- Watts Bar II – First nuclear unit in over 20 years
- Vogtle 3-4 (Southern Company) AP1000 units moving forward
- Summer 2-3 (SCANA/Santee Cooper) – construction stopped
- Recent Legislation in NY, IL., CT, NJ, and MN to provide financial support for clean nuclear power



Scram Trends 2006 - 2017



The Role of NRC



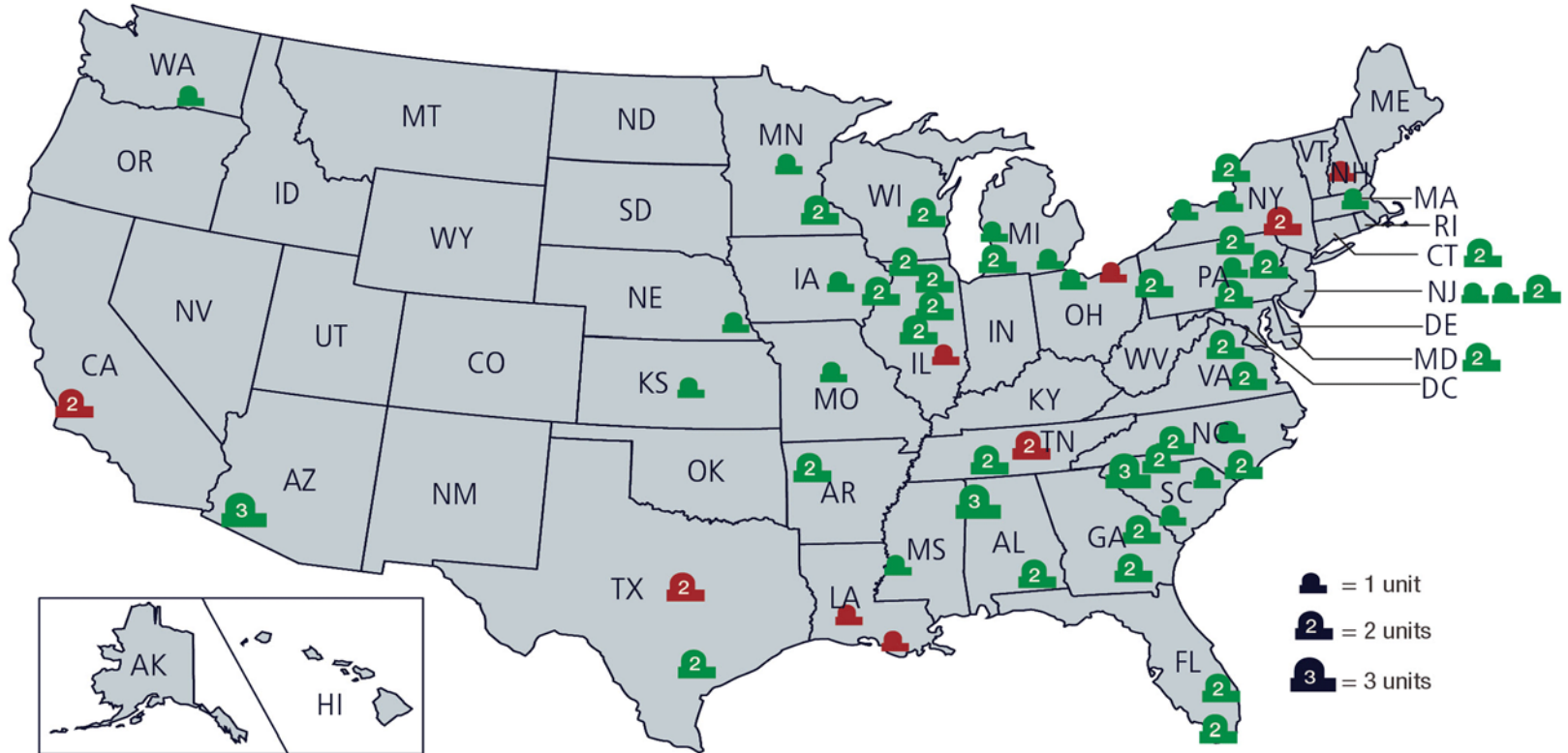
- Established in January of 1975 to be an independent regulator of nuclear power as well as all civilian uses of radioactive materials
 - Agreement State Program allows some Material Licenses to be state regulated
 - NRC has sole authority over regulation of nuclear power plants
- NRC's statutory purpose is to protect public health and safety and the common defense and security; not to promote nuclear power
- NRC is an independent regulatory agency and is not part of the Department of Energy
- NRC does not report to the President - Chairman designated by President
- NRC derives its authority solely from statutes enacted by Congress and ultimately answers to Congress

NRC License Renewal Process



- Atomic Energy Act and NRC regulations limit commercial power reactor licenses to an initial term of 40 years
- Original 40-year term for reactor licenses was based on economic and antitrust considerations -- not on limitations of nuclear technology
- Due to this selected period, however, some structures and components may have been engineered on the basis of a 40-year service life
- Nuclear plant licenses can be extended for additional 20 year increments
- NRC license renewal process is codified in 10 CFR Part 51 and 54 and is intended to assure safe plant operation for extended plant life
 - Focus of integrated inspection and analysis is intended to validate that plant safety will be maintained during continued operations
 - Inspection activities include analysis of plant aging, updated environmental review and an assessment that aging management programs are sufficient
 - Public Comment opportunities are included in process

License Renewals Granted for Operating Nuclear Power Reactors



Licensed to Operate (99)

Original License (13) **License Renewal Granted (86)**

Note: The NRC has issued a total of 89 license renewals; three of these units have permanently shut down. Fort Calhoun nuclear power plant permanently shut down on 10/24/2016. Data are as of October 2017. For the most recent information, go to the Dataset Index Web page at <https://www.nrc.gov/reading-rm/doc-collections/datasets/>

As of October 2017



Subsequent License Renewal Program



- The NRC regulations permit reactor licenses to be renewed beyond the initial 40-year term for 20-year increments per renewal
- There are no specific limitations in the AEA or the NRC's regulations restricting the number of times a license may be renewed
- The NRC staff has defined subsequent license renewal (SLR) to be the period of extended operation from 60 years to 80 years
- The NRC and the nuclear industry have been preparing for SLR for more than 4 years
- An initial activity of the Commission was the determination that the rules established for license renewal are sufficient for SLR (SECY- 14-0016)
- The decision to grant a renewed license is based on the outcome of an NRC review to assess if the nuclear facility can continue to operate safely during the 20-year period of extended operation

Subsequent License Renewal Program Continued



- The NRC, the industry (through the Electric Power Research Institute) and DOE (through its Light Water Sustainability Program) have been conducting extensive research in support of SLR
- The SLR research has identified no technical show stoppers for extended operations from 60 to 80 years
- The "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report" provides guidance for SLR applicants
- GALL-SLR Report contains the NRC staff's generic evaluation of plant aging management programs, and establishes the technical basis for their adequacy
- GALL-SLR was developed with multiple opportunities for public input and with review by the Advisory Committee on Reactor Safety
- The NRC and industry are trying to optimize the SLR process with a target timeline of 22 months

Current and Future Submittals of Subsequent License Renewal Applications

Fiscal Year	No.	License Renewal Application	Applicant	Submission Date
2018	1	Turkey Point Nuclear Power Plant Units 2&3 (Florida)	Florida Power and Light	January 1, 2018
2018	1	Peach Bottom Atomic Power Station, Unit 2 & 3 (Pennsylvania)	Exelon Generation Co., LLC	July to September 2018
2019	1	Surry Power Station, Unit 1 & 2 (Virginia)	Virginia Electric and Power Company (Dominion)	Jan. to Mar. 2019
2021	1	North Anna Power Station, Units 1 & 2	Virginia Electric and Power Company (Dominion)	Oct. – Dec. 2020

Questions

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