

# Plant Life Extension/Second License Renewal

WNA Symposium

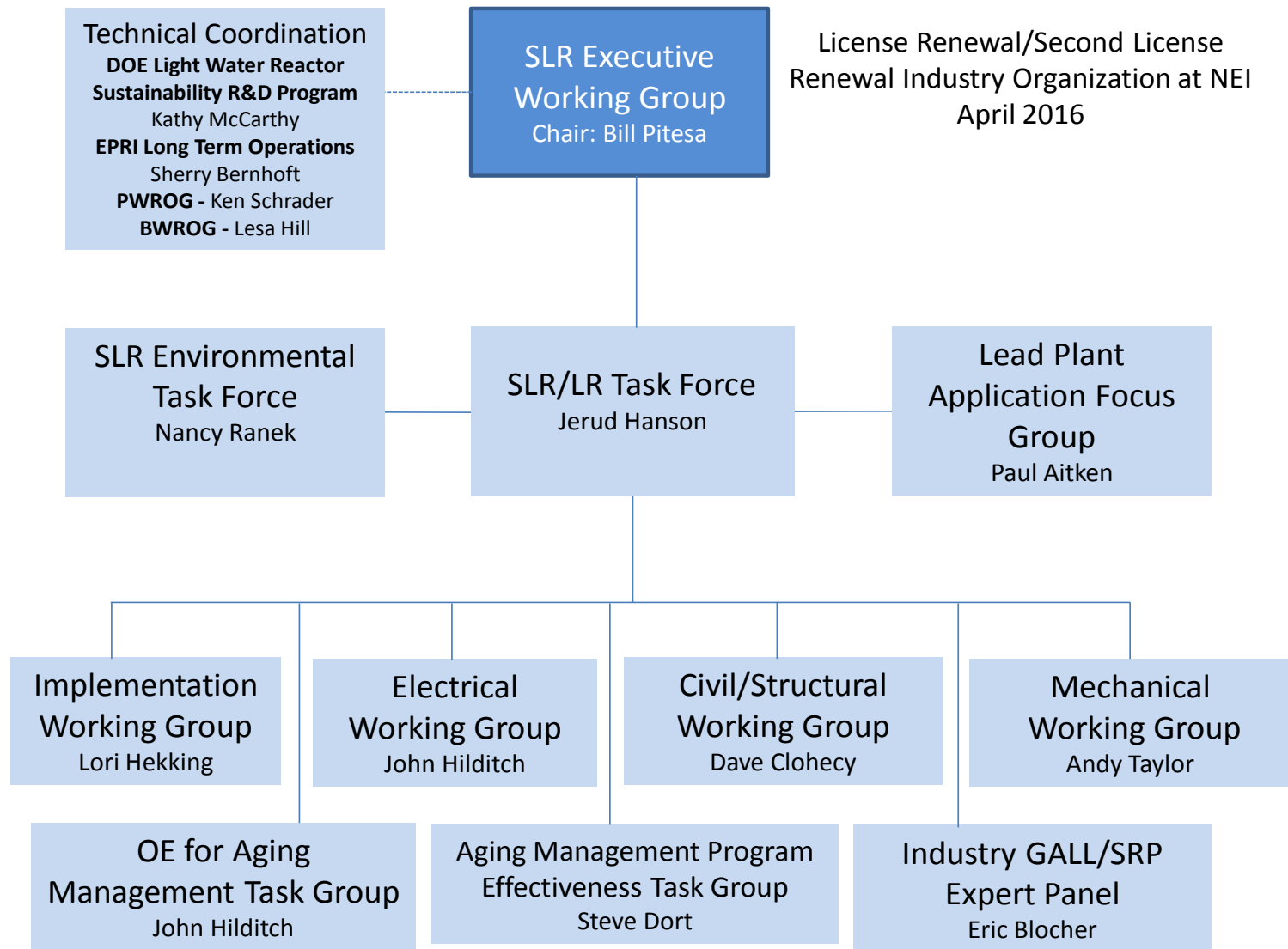
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Chicago, IL

Jerud Hanson

Nuclear Energy Institute





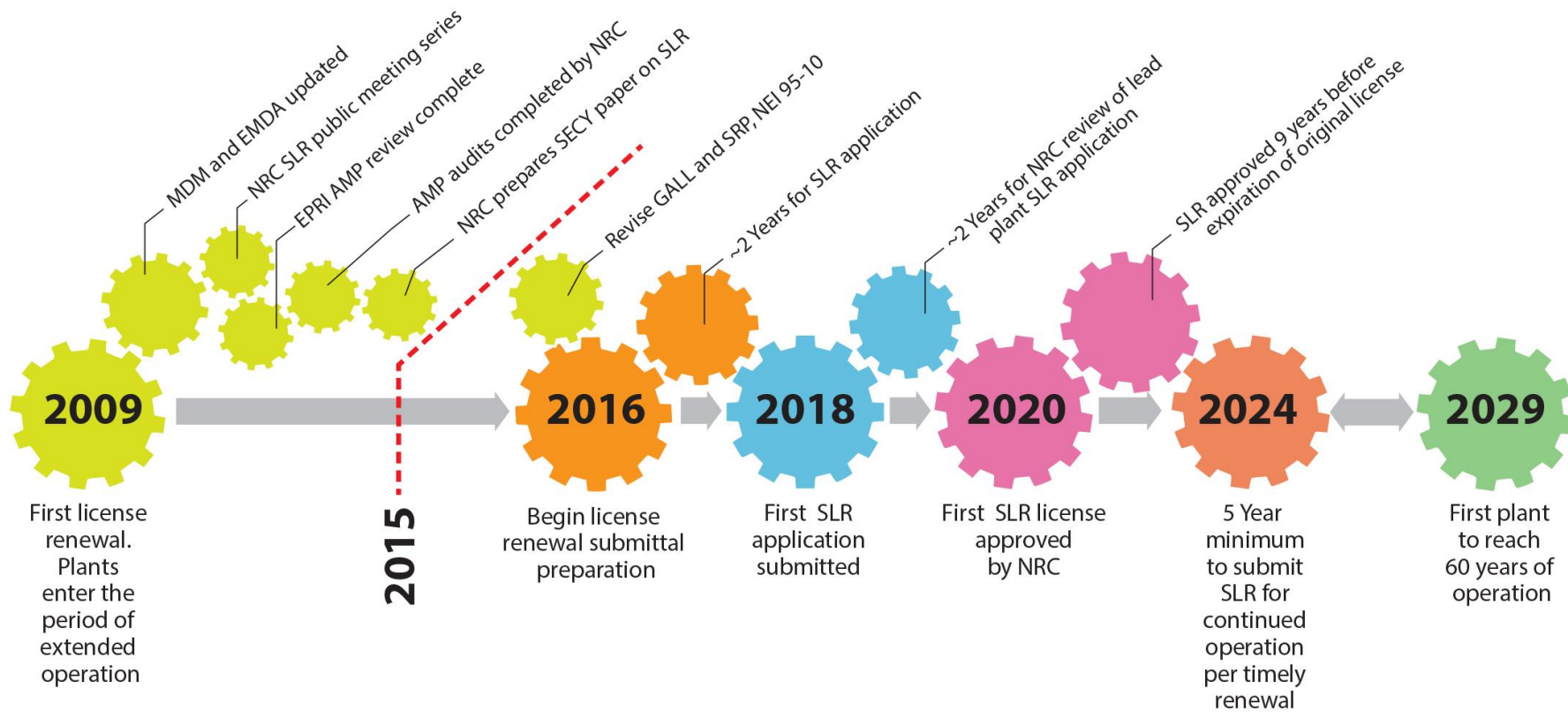
# Close Coordination with Research

- ASME Special Working Group
  - Nuclear Plant Aging Management
- EPRI Long Term Operation (LTO) Program
  - EPRI documents identified in GALL in support of first round of LR
  - Review and Update of Materials Reports
    - 1428 Documents Screened, 37 Need Revision
    - Most significant MRP issue identified is updating MRP-227 to address 60-80 year operations
    - Materials programs will develop plans and prioritization of updates, detailed schedule to be provided in Dec 2015
- Department of Energy's (DOE) Light Water Reactor Sustainability Program (LWRS)
  - Materials Aging and Degradation
  - Advanced Instrumentation, Information, and Control Systems

# Second License Renewal

- By 2030:
  - First US nuclear plants will reach 60 years
- By 2040:
  - U.S. electricity demand is expected to increase 28 percent
  - Half of the nation's nuclear power plants will reach 60 years

## Second License Renewal Timeline



# SLR Objectives

- No change to license renewal rule (10 CFR 54)
- No changes to GALL Aging Management Programs (AMPS) unless supported by OE or research
- Improved efficiency of SLR application and submittal process using lessons learned from first round of License Renewals
  - Reduce RAIs and shorten application review goal from 22 months to 18 months or better

# SLR Milestones

- In 2014 the Commission directed NRC staff to update existing guidance – no new rulemaking
- Over 300 pages of industry comments provided to draft SLR-GALL and SRP
  - Additional comments submitted to the draft GALL Supplement in May
- Receptiveness to SLRA review efficiency and reducing RAIs

# What's Been Said About Nuclear?

- President Barrack Obama in 2011 SOTU address:
  - “By 2035, 80% of America’s electricity will come from clean energy sources. Some folks want wind and solar, others want **nuclear**, clean coal, and natural gas. To meet this goal we will need them all.”





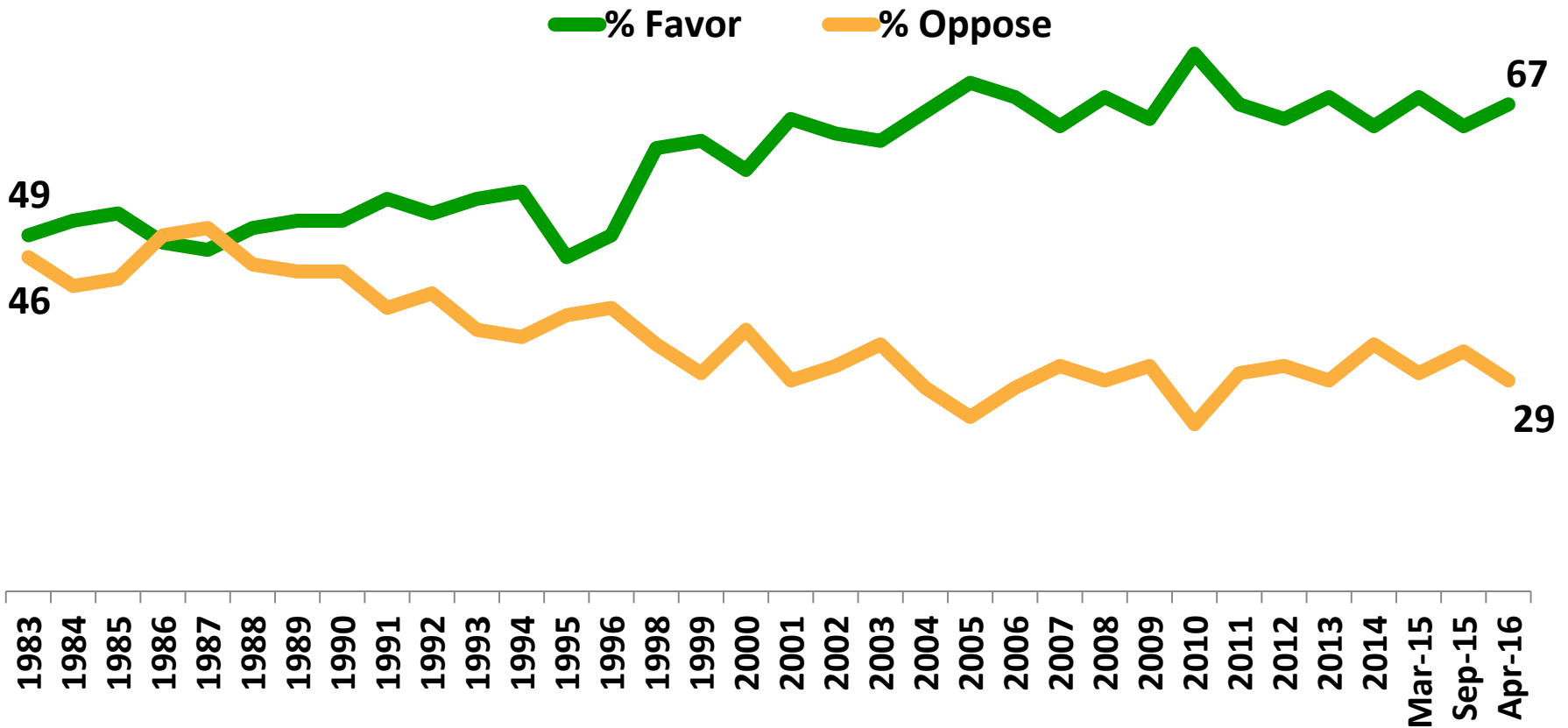
# What's Been Said Cont'd

- Energy Secretary Ernest Moniz in 2014 National Press Club Speech:
  - “All-of-the-above is not merely a slogan, but a clear-cut pathway to creating jobs and...reducing carbon emissions. President Obama has made clear that he sees **nuclear** energy as part of American’s low carbon energy portfolio...”



# Long-Term Trend Favorable

Overall, do you strongly favor, somewhat favor, somewhat oppose, or strongly oppose the use of nuclear energy as one of the ways to provide electricity in the United States? (%)



Bisconti Research, Inc. with GfK Roper and Quest Global Research

# Policies Supporting Nuclear

- Climate Action Plan – June 2013
  - Reduce greenhouse gas emissions by 30% by **2030**
- Executive Order #13693 – March 2015
  - Reduce Federal facility greenhouse gas emissions 40% by 2025
  - Defines “clean energy” to include alternative energy
    - Definition of “alternative energy” includes “small modular **nuclear** reactor technologies”

# Supporting Policies Cont'd

- Clean Power Plan – August 2015
  - Sets carbon emissions performance goals for every state in U.S.
  - Provides flexibility to states to choose how to meet carbon standards
    - Include renewables, energy efficiency, natural gas, **nuclear** and carbon capture and storage
- COP21 – December 2015
  - International agreement to limit average temperature rise to <2 degrees C
  - Reaffirmed U.S. commitment to carbon reduction goals

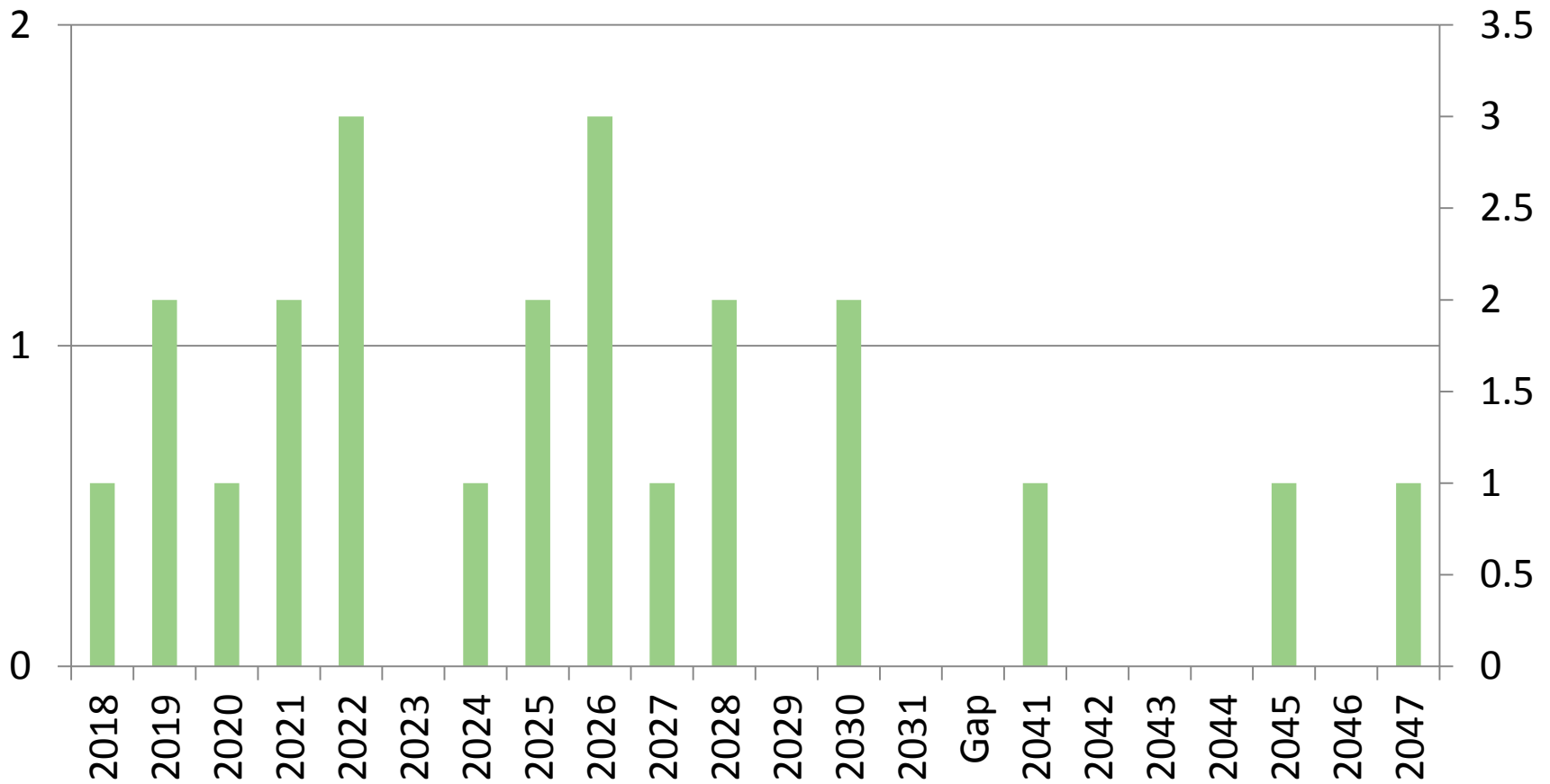
# Supporting Policies Summary

- Nuclear power must play a significant role in our energy future
- Nuclear power has many benefits that current economic conditions do not consider
  - Diversity
  - Reliability
  - Environmental
- The continued long-term operation of the existing fleet of nuclear power plants via SLR is a critical part of our energy infrastructure
- New nuclear plants needed in the long term
  - Large LWRs
  - SMRs
  - Advanced Reactors

# SLR Industry Questionnaire Results

- NEI conducted an SLR industry survey in May
  - Results of 14 utility participants analyzed
- Total of 21 plants/site SLR applications anticipated into 2047
  - No more than 3 applications in a given year
  - Most occurring by 2030

# SLR Applications per Year



# Nuclear Outlook

- Input to Administration on Nuclear
  - Feedback from DOE, technical data and public opinion supports nuclear
- Environment
  - Nuclear is a clean, safe and reliable option
  - No adverse impacts on global warming
  - Low carbon footprint
- Political environment
  - Some are not listening



# Why is SLR so important?

- Industry
  - For now, it is the only way for nuclear power to remain part of the U.S.'s energy portfolio
- Economic
  - Vital to economic stability in our energy market, not to mention the workforce
- Nation
  - Vital to maintaining our national security and continued independence
  - Healthy form of affordable energy for the public
- World
  - The U.S. **must** maintain its industrial edge if it is going to continue in its position on the world stage
    - Remaining at the forefront of nuclear technology advancement and development

# Questions?