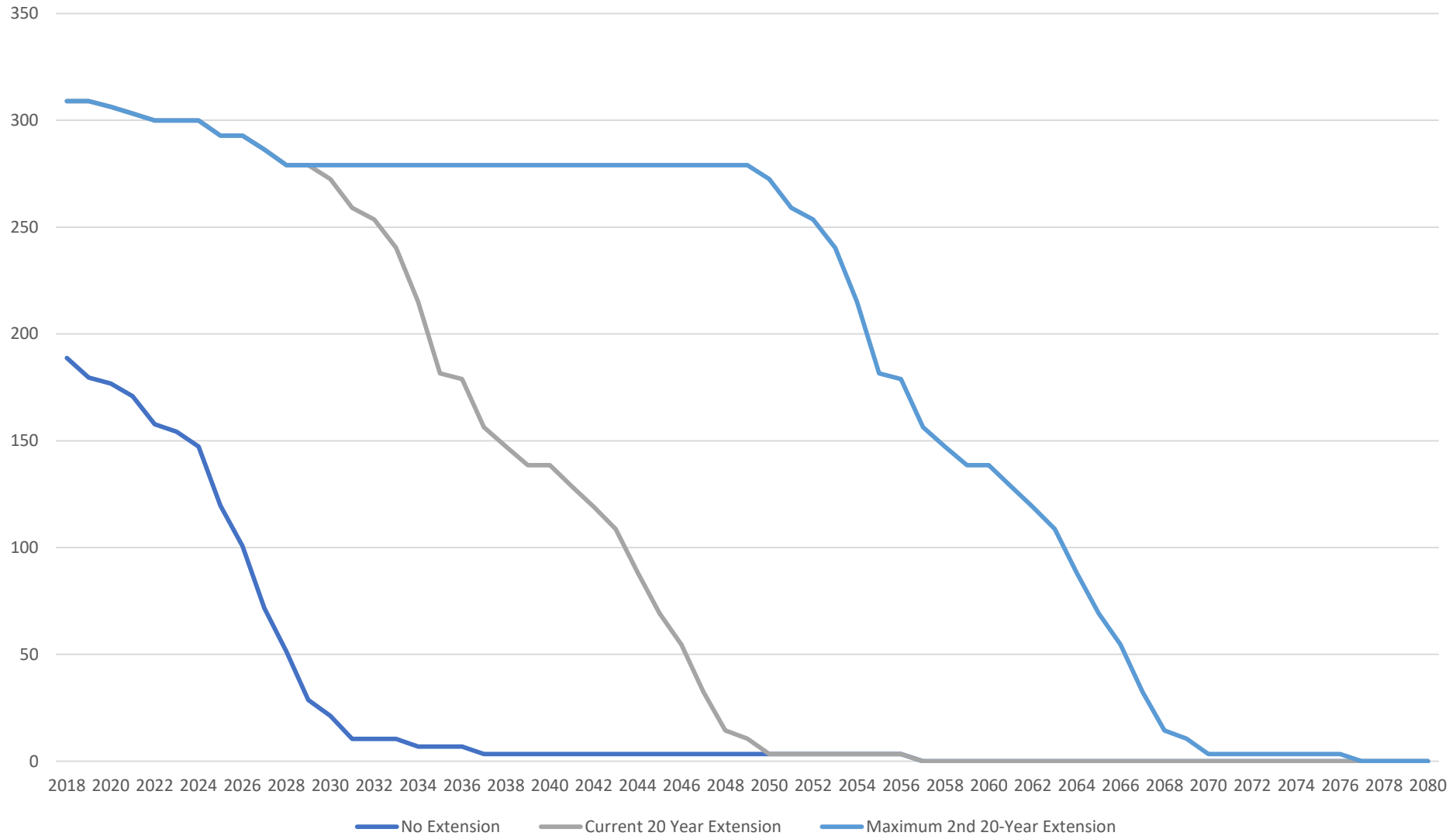


Decommissioning: The Future of the Nuclear Industry

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Nuclear Industry Future



Key Points

- Economics and poor performance are making it harder for existing nuclear units to compete in competitive wholesale electricity markets (about ½ of all plants)
- There are only two new plants under construction
- Decommissioning will become the dominant issue for the nuclear power industry in the United States in the next decade, unless --
 - Second life extension becomes viable (very unlikely)
 - Something dramatically changes the major trends around the macro electricity industry (always possible)

Key Issues for Decommissioning

- Plant Cleanup itself
- Disposition of Spent Fuel
- (What happens to the safety of the existing fleet as the top power generation talent shifts to other fields – leads to more and earlier plant decommissioning?)

Plant Cleanup

- By regulation all plants must have funds set aside for *nuclear* decommissioning as determined by an NRC formula
 - Deregulated plants have the full** amount set aside at all times
 - Regulated plants can continue to charge ratepayers for necessary funds
 - Key Issue: Are funds sufficient to conduct cleanup (probably)
 - Key Issue: What happens if funds run out?
- Most plants choose to pursue SAFSTOR, which allows up to 60 years to complete plant cleanup
 - Allows growth in decommissioning funds
 - Allows reduced radiation impacts to workers
 - Key issue: 60 years is a long time for plants to sit and land to be unuseable for other purposes

Market Reaction

- Large decommissioning funds combined with strong community interest in earlier decommissioning has led to a number of plant sales to companies to perform decommissioning
 - Most decommissioning funds were established primarily with ratepayer money and excesses to be returned upon completion
 - New entrants promise earlier cleanup in exchange for a portion of the remaining funds after cleanup completed
 - Key Issue – Can the cleanup be performed earlier with less money than plant (skeptical)
 - Key Issue – Are the new owners sufficiently capitalized and knowledgeable to deal with the hazardous, but straightforward task of decommissioning (Likely**)
 - Key Issue – Should excess funds be returned to ratepayers?

Spent Fuel

- In the best scenario, it will be several decades before a geological repository could be opened. Therefore spent fuel will be managed in interim sites
- Two approaches
 - At reactors themselves: either at the reactor that made the fuel or at other company owned site
 - Consolidated Interim Storage

On-site Reactor Storage

- Viable (and de facto) solution for most plants with risk largely driven by long term environmental contamination problems, which can be mitigated with enough money and management focus
 - Key Issue: Are the new decommissioning entrants capable of providing this long term support

Consolidated Interim Storage

- Consolidated Interim Storage means moving spent fuel to one or a few storage facilities throughout the country for storage
- This is essentially permanent storage, because once fuel moves it will be hard to move it back.
 - Key Issues: Do previous owners maintain title? Do they need to reserve space for returned fuel? Does DOE take title?
- Finding interim site mean finding a permanent site because from a practical perspective there is no such thing as interim storage
 - Key Issue: Back to the challenges of finding a permanent place to store fuel
- By law an interim site cannot be a permanent repository, so using interim storage requires moving fuel twice : plant to interim, interim to permanent
 - Key Issue: Introduces additional transportation policy and technical challenges over direct move to permanent repository