

## Fuel Special Section

of fixed absorbers is generally expected to be effective. Some sites, however, have limited design or storage flexibility and will elect not to adopt higher enrichment fuel designs. While relicensing any fuel system to meet modern criticality analysis standards poses regulatory challenges, these are considered by industry to be manageable with the current technology and regulatory guidance.

Some generic analysis methods may be affected by fuel burnup limit increases. These include accident source terms and decay heat correlations. A full review of the industry's existing experimental data and associated fuel modeling is needed to determine whether sufficient margin exists in the current limits to support higher burnups.

New dry cask designs will be required to address fuel criticality, decay heat, and site boundary dose limits for the exclusion area and low-population zone. These changes to the design and licensing bases for dry cask systems do not pose a significant technical challenge. Higher burnup designs will allow longer cooling times for the same spent fuel pool storage capacity. This increase in cooling time will partially offset the increase in heat load due to higher burnup. New cask designs, currently being qualified to higher heat load limits, are expected to provide the capability to

address these higher heat loads.

To evaluate the benefits of new enrichment and burnup limits, fuel management studies were performed for both PWR and BWR systems. The results of these studies are illustrated in Fig. 3. For all cases, enrichment expenses increased slightly, and  $U_3O_8$  feed stock costs were reduced. Most

of the savings come from fabrication, because fewer fabricated assemblies are needed for new reload batches. This results in savings that are relatively insensitive to future feed or enrichment prices, but fuel fabrication costs are expected to increase to address the impact of these changes on fuel suppliers.

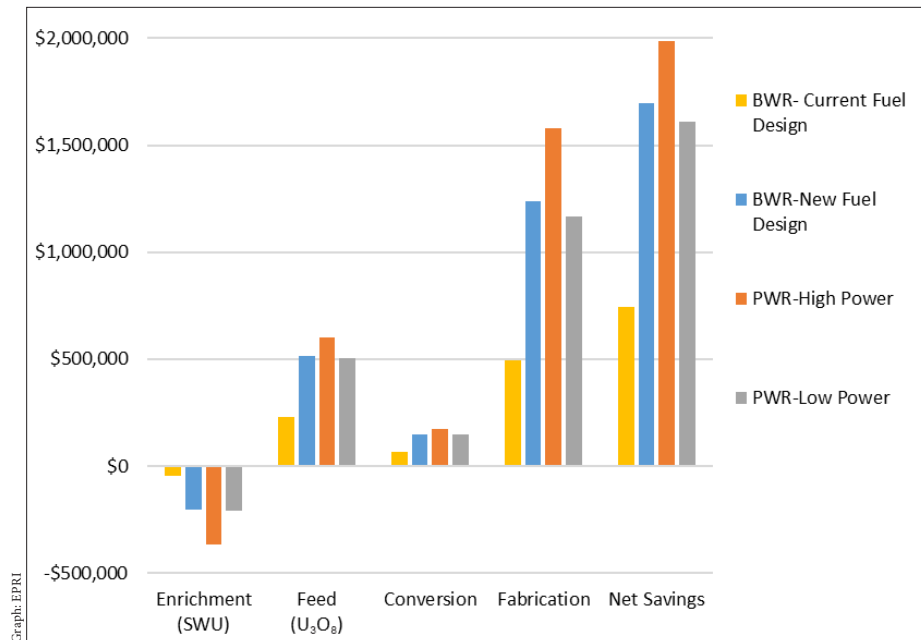


Fig. 3: Annual fuel cost savings by component for 1,000 MWe plant.



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