

Intergenerational Equity Considerations of Nuclear Waste Management

Before the Blue Ribbon Commission on Nuclear Waste

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The common belief is that we, who are benefiting from the use of nuclear energy, should not burden future generations with nuclear waste and, as such, we need to find a solution today. What is missing from this simplistic statement is what value does using nuclear energy today for have future generations and what risks are posed to this generation for future generations because of this future value? Indeed, what are the risks to future generations from nuclear waste as disposed of, say, in a Yucca Mountain Repository? How do we decide what is the best course of action?

To answer some of these questions, the National Academy of Public Administration was commissioned to address the question of how to make decisions that have intergenerational implications such as those associated with nuclear waste disposal. In its report, "Deciding for the Future: Balancing risks, costs, and benefits fairly across generations", published in 1997, the panel recommended the following overarching objective: "no generation should needlessly, now or in the future, deprive its successors of the opportunity to enjoy a quality of life equivalent to its own". Coupled with this objective were four supporting principles of: trusteeship, sustainability, chain of obligation and precaution. NAPA recommended decision making process as recognized that no decision needs to be or can be "final" and that a "rolling future" view is better for "all time". What this means is that we can never know enough to be final answer. Finally, the decision making process attempts to balance the needs of the present with those of the future in an open and transparent process that is aimed at producing a decision and not endless analysis.

This process when applied to the Yucca Mountain repository led to the following major result: the current licensing process which requires a reasonable expectation of repository performance for 1 million years is fatally flawed and unnecessary since it violates a number of rational intergenerational decision making criteria and ignores the "rolling future" approach and finality of decisions. Additionally it penalizes current generations from billions of dollars spent on attempting to prove unneeded criteria at the expense of other more current and important needs of this generation (investments in cancer research, world hunger, etc.) In my paper, I outline specifically how the NAPA process could be applied to repository licensing and design.

I also recently co-authored a study on intergenerational considerations of the fuel cycle for the MIT Fuel Cycle Study which you have already heard about. The objective of this study was to qualitatively assess fuel cycle options on an intergenerational equity basis using sustainability and moral values as criteria in which burdens and benefits are distributed among generations. Four alternative fuel cycle scenarios were considered: (1) Once through; (2) Once through with underground storage/disposal; (3) Transmutation of actinides using light water reactors and fast reactors; (4) Light water – breeder reactor option. What became quite clear in comparing these options was that this generation was taking on significantly more relative risk compared to future generations to minimize waste streams for the future benefit of a sustainable energy for future generations when compared to direct disposal in a repository. This suggests our initial narrow view of intergenerational equity should be broadened reflecting the true value of the nuclear fuel cycle and the "waste" it may produce for the benefit of future generations.

Both papers are attached.