

Current Staff Initiatives to Update the Dollar per Person-Rem Conversion Factor Policy and Replacement Power Costs

Reassessment of NRC's Dollar per Person-Rem Conversion Factor Policy

As Enclosure 7 describes in greater detail, the NRC uses its current dollar per person-rem conversion factor to capture the dollar value of the health detriment resulting from radiation exposure. This value is used by all NRC program offices in the evaluations of their regulatory actions. The NRC last revised its value of a person-rem averted in 1995, and published it in "Reassessment of NRC's Dollar per Person-Rem Conversion Factor Policy," NUREG-1530 (ADAMS Accessions No. ML063470485).

In 2010, the Office of Nuclear Reactor Regulation (NRR) contracted the services of ICF International to begin to reassess the dollar per person-rem conversion factor. In 2011, NRR sent the Office of Nuclear Regulatory Research (RES) a user-need request to further this research and publish a revised conversion factor policy in the form of a NUREG.

RES began by reviewing the ICF report and the value of statistical life (VSL)¹ used by other federal agencies to determine whether the recommendations of ICF were up-to-date and comparable to that of other agencies. In order to facilitate information gathering and exchange with other federal agencies, RES sponsored an interagency regulatory analysis workshop focusing on the VSL, a major component of the dollar per person-rem conversion factor.² The workshop was held on March 19 and 20, 2012. It brought together approximately 50 participants from 10 different federal agencies and included representatives from the Department of Energy, the Department of Homeland Security, the Department of Transportation, the Environmental Protection Agency, the Food and Drug Administration, the National Oceanic and Atmospheric Administration, and the Department of Agriculture. The participants exchanged lessons learned regarding calculating, updating, applying, and communicating the VSL, and identified potential areas for future interagency collaboration in the area of regulatory analysis. The workshop highlighted similar and unique challenges regarding the VSL faced by each agency and provided useful insights for the NRC's updating efforts.

The staff is continuing work on determining an updated dollar per person-rem conversion factor and researching the feasibility of developing a well-defined process to periodically update this factor. Staff expects to complete research on an updated dollar per person-rem factor and publish a final NUREG documenting the revised value in 2014. The staff will engage external stakeholders and seek approval from the Commission prior to finalizing this NUREG.

Replacement Power Costs

In performing a regulatory analysis relating to power reactor regulatory actions, the NRC staff often identifies among the key impacted attributes those relating to replacement energy costs. Replacement energy costs may be required because a required regulatory activity needs to be performed while a plant is not operating. This is generally identified as an industry

¹ As discussed in OMB Circular A-4, the value of statistical life (VSL) refers to the monetized value of small changes in fatality risk and provides a measurement of willingness to pay for reductions in only small risks of premature death. The VSL has no application to an identifiable individual or to very large reductions in individual risks.

² Per NUREG-1530, the dollar per person-rem conversion factor is determined by multiplying the value of statistical life (the dollar value of the health detriment) and a risk-cancer factor (a risk factor that establishes the nominal probability for stochastic health effects attributable to radiological exposure).

implementation cost and is specifically referred to as short-term replacement power. Also, replacement energy cost estimates could be the result of a decrease in the risk of an accident, the benefit of which can be estimated through the change in replacement energy costs for an operating reactor. This is generally addressed in the onsite property costs attribute and is referred to as long-term replacement power.

The NRC published estimates for plant-specific replacement energy costs for both the long and short term in NUREG/CR-6080, "Replacement Energy, Capacity, and Reliability Costs for Permanent Nuclear Reactor Shutdowns," October 1993, and NUREG/CR-4012, "Replacement Energy Costs for Nuclear Electricity-Generating Units in the United States," September 1997. However, many changes have occurred in the electrical generation and transmission industries since the publication of these documents. Most significantly was the deregulation of the electric generation industry in several states and in the electrical transmission market. Furthermore, the Federal Energy Regulatory Commission (FERC) has instituted rulemakings over the time period which would also impact the transmission costs and, as a result, replacement energy costs. Given the time since the replacement energy values were last derived and the changes in market conditions, the NRC has been revisiting this concept and is initiating guidance revisions that will provide updated estimates.