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TABLE 11 Annual Natural Uranium Requirements for the Domestic 208,000 MWe under EDA Contracts

Calendar Year	Thousands of Short Tons U ₃ O ₈	
	• With U and Pu Recycle	• Without U or Pu Recycle
	• Continue 0.20% Indefinitely	• Start 0.25% On October 1, 1978
1977	14.9	14.9
1978	21.5	23.1
1979	25.9	28.3
1980	28.1	31.3
1981	29.3	33.4
1982	31.2	36.7
1983	29.5	36.5
1984	32.5	41.0
1985	32.7	43.2
1986	29.5	41.8
1987	29.8	43.6
1988	29.8	45.0
1989	28.4	45.3
1990	27.9	45.5

SOURCE: Parks and Thomas, EDA-GO-108(76).

Nuclear Power Projections

Three projections of nuclear power growth developed by EDA are presented in Table 12 (Barragan et al., EDA-GO-180(76)).

The *Mid Case* projection of future installed nuclear electrical capacity is currently the expected case. The *Low Case* is based on the assumption that a decision not to reprocess U and Pu will reduce the attractiveness of the nuclear power option. The *High Case* is intended to meet higher economic growth rates than those anticipated in the *Mid Case*.

The *Low Case* would require about 20 percent less uranium; the *High Case* would require about 14 percent more uranium by the year 2000. From available information, a shift of demand toward the *Low Case* currently appears more possible than an acceleration to the *High Case*.

For the 1976 *Mid Case* forecast, the annual natural uranium requirements are given in Tables 11A and 11B (from EDA-GO-108(76)). These requirements will reach 50,000 tons of U₃O₈ per year in 2000 at 0.25 percent tails, if plutonium is not recycled. These requirements could be reduced or increased, depending on decisions and commitments with respect to enrichment levels, plutonium, and/or uranium recycling, fast breeder developments, national energy consumption, and other factors. For the discussions of projected uranium requirements, our panel will

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Nuclear energy for net zero: a strategy for action

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ERDA ESTIMATES OF U.S. URANIUM RESOURCES

Tables 1-4 summarize the data of ERDA (Hetland, Uranium Industry Seminar, 1976).

ERDA has not yet established a systematic estimate of ore reserves or potential resources at forward costs higher than \$30/lb U_3O_8 . It plans to provide an estimate of \$50/lb U_3O_8 reserves in the next annual NURE report in 1977. The agency has not described a basis for estimating such higher forward costs in unconventional nonsandstone resources.

With the exception of the statement of reliability of ± 20 percent for \$10/lb and \$15/lb U_3O_8 ore reserves, ERDA has offered no published confidence limits for these resource estimates. Our subpanel questioned the Grand Junction resource assessment group informally, but closely, on whether a statistical basis for probability analysis existed. We were informed that, in their opinion, there was no such basis. A request to provide a subjective estimate of confidence in the various categories and classes of resource estimate was declined, although a general opinion that the "speculative" class of potential resources was probably underestimated seemed to be held.

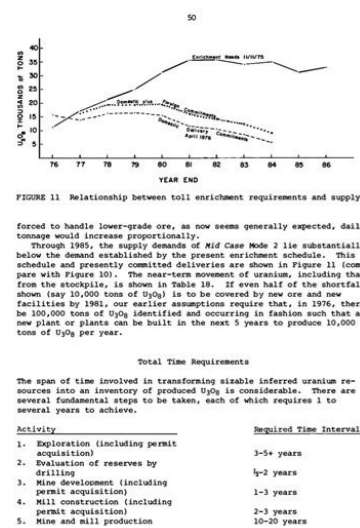
TABLE 1 U.S. Uranium Resources as of January 1, 1976^a

%lb U_3O_8 Cutoff Cost	Tons U_3O_8			
	Reserves	Probable	Possible	Speculative
\$10	270,000	440,000	420,000	145,000
\$10-\$15 increment	160,000	215,000	255,000	145,000
\$15	430,000	655,000	675,000	290,000
\$15-\$30 increment	210,000	405,000	595,000	300,000
\$30	640,000	1,060,000	1,270,000	590,000
By-product 1976-2000 ^b	140,000	---	---	---
	780,000	1,060,000	1,270,000	590,000

^aU.S. resources as of January 1, 1977, released by ERDA-GJO (June 22, 1977), show changes well within the limits of uncertainty of the figures quoted here.

^bEstimated by-product of phosphate and copper production.

SOURCE: ERDA-GJO-108(76).



Good Practices Guide on Non-Nuclear Critical Energy Infrastructure Protection (NNCEIP) from Terrorist Attacks Focusing on Threats Emanating from Cyberspace



