The results of the cost ranges for steady-state production using discounted 1995 dollars are shown in Table 2. For each alternative a low, mean and high cost estimate is presented for TLCC with revenue, TLCC without revenue, TPC and O&M. The low estimate is the 5th percentile of the cost probability distribution, i.e., there is a 5% chance that the true cost will fall below the low estimate. The mean estimate is the average of the cost probability distribution. The high estimate is the 95th percentile of the cost probability distribution, i.e., there is a 95% chance that the true cost will fall below it.

The TLCC with revenue represents the estimated cumulative discounted net cost to the government or the taxpayers for each of the alternatives, since revenues from electricity sales would come to the government, not the Department. The Department must budget for all costs; therefore, the TLCC without revenue shows the estimated cumulative discounted cost to the Department. TPC represents the discounted capital cost estimates to develop, construct and make operational each alternative. The O&M costs are the discounted costs after the facility would become operational.

For TLCC with revenues (first column of Table 2), the option to purchase irradiation services has the lowest mean estimated cost (1.2 billion dollars) with uncertainty adding approximately 500 million dollars (95th percentile above the mean). The option to purchase an existing reactor has a mean cost of 1.4 billion dollars (17 percent higher than purchasing irradiation services) with uncertainty adding approximately 2.4 billion dollars. The option to purchase a partially complete commercial reactor has a mean cost of 2.0 billion dollars (67 percent higher than purchasing irradiation services) with uncertainty adding 2.4 billion dollars. The new reactor technology alternatives have mean costs that range from 2.7 billion dollars for the small ALWR (125 percent higher than purchasing irradiation services) to 6.3 billion dollars for the steam cycle MHTGR (425 percent higher than purchasing irradiation services). All new reactor alternatives have significant cost uncertainties, which add from 1.5 billion dollars (small advanced HWR) to 3.9 billion dollars (large ALWR). The APT has a mean cost of 5.1 billion dollars (325 percent higher than purchasing irradiation services) with uncertainty adding approximately 2.7 billion dollars. The large uncertainties create a substantial overlap in the cost distributions of the alternatives, except for the purchase of irradiation services.

For TLCC without revenues (second column of Table 2), the option to purchase irradiation services has the lowest mean estimated cost (1.2 billion dollars) with uncertainty adding approximately 500 million dollars (95th percentile above the mean). The option to purchase an existing reactor has a mean cost of 4.1 billion dollars (242 percent higher than purchasing irradiation services) with uncertainty adding approximately 1.1 billion dollars. The option to purchase a partially complete commercial reactor has a mean cost of 4.4 billion dollars (267 percent higher than purchasing irradiation services) with uncertainty adding approximately 2.2 billion dollars. The new reactor technology alternatives have mean costs that range from 4.2 billion dollars for the small ALWR and small advanced HWR (250 percent higher than purchasing irradiation services) to 7.1 billion dollars for the steam cycle MHTGR (492 percent higher than purchasing irradiation services). All new reactor alternatives have significant cost uncertainties, which add from 1.5 billion dollars (small advanced HWR) to 3.7 billion dollars (large ALWR). The APT has a mean cost of 5.1 billion dollars (325 percent higher than purchasing irradiation services) with uncertainty adding approximately 2.7 billion dollars. The large uncertainties create a substantial overlap in the cost distributions of the alternatives, except for the purchase of irradiation services.

For TPC (third column of Table 2), the option to purchase irradiation services has the lowest mean estimated TPC (0.5 billion dollars) with uncertainty adding approximately 200 million dollars (95th percentile above the mean). The option to purchase an existing reactor has a mean TPC of 1.7 billion dollars (240 percent higher than purchasing irradiation services) with uncertainty adding approximately 1.1 billion dollars. The option to purchase a partially complete commercial reactor has a mean TPC of 1.9 billion dollars (280 percent higher than purchasing irradiation services) with uncertainty adding 1.5 billion dollars. The new reactor technology alternatives have mean TPCs that range from 2.3 billion dollars for the small ALWR (360 percent higher than purchasing irradiation services) to 4.5 billion dollars for the steam cycle MHTGR (800 percent higher than purchasing irradiation services). All new reactor alternatives have significant cost uncertainties, that add from 1.4 billion dollars (small advanced HWR) to 3.3 billion dollars (Direct Cycle MHTGR). The APT has a mean TPC of 3.0 billion dollars (500 percent higher than purchasing irradiation services) with uncertainty adding approximately 2.5 billion dollars. The large uncertainties create a substantial overlap in the TPC distributions of the alternatives, except for the purchase of irradiation services.

The O&M costs make up the fourth cost item (fourth column of Table 2). The option to purchase irradiation services has the lowest mean estimated O&M cost (700 million dollars) with uncertainty adding approximately 400 million dollars (95th percentile above the mean). The option to purchase an existing reactor has a mean O&M cost of 2.4 billion dollars (243 percent higher than purchasing irradiation services) with uncertainty adding approximately 800 million dollars. The option to purchase a partially complete commercial reactor has a mean O&M cost of 2.5 billion dollars (257 percent higher than purchasing irradiation services) with uncertainty adding 1.3 billion dollars. The new reactor technology alternatives have mean O&M costs that range from 1.5 billion dollars for the small advanced HWR (114 percent higher than purchasing irradiation services) to 2.6 billion dollars for the steam cycle MHTGR (271 percent higher than purchasing irradiation services). All new reactor alternatives have significant O&M cost uncertainties, that add from 600 million dollars (small Advance HWR) to 1.1 billion dollars (steam cycle MHTGR). The APT has a mean O&M cost of 2.1 billion dollars (200 percent higher than purchasing irradiation services) with uncertainty adding approximately 800 million dollars. The large uncertainties create a substantial overlap in the cost distributions of the alternatives, except for the purchase of irradiation services.

The costs of a multipurpose reactor were analyzed separately from the tritium supply alternatives. The Department's Fissile Materials Disposition Office and an independent contractor prepared separate estimates. Different discount rates were used in the reports, which also only identified the minimum and maximum cost range. The results of the independent analysis, in discounted 1995 dollars are: (1) $4.5 billion to $14 billion for a government-owned large ALWR, $2.9 billion to 8.6 billion for a small ALWR, and $2.7 billion to $9.9 billion for a commercial reactor option; (2) $5.2 billion to $25.4 billion for a privatized large ALWR, $3.1 billion to $14 billion for a small ALWR, and $1.9 billion to $11.3 billion for a commercial reactor option. The result of the Department's analysis, in discounted 1993 dollars, is: (1) For a